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The Outcome of This Year’s Elections Could Be in YOUR Hands

By Jennifer LeFevre, Director of Government Relations, NRMCA

One would expect once-in-a-lifetime events to be exactly that – once in a lifetime. However, that has not been the case over the last two major elections in 2000 and 2002. No one needs to rehash the 2000 Election Day debacle in Florida but the major point needs to be underscored just the same: every single vote matters – not only in the presidential election but in all elections. The national elections in 2000 and 2002 were the closest in history and history could repeat itself again this November. And some outcomes could be in your hands.

Although voter registration of eligible voters and overall voter turnout in the United States has decreased to pathetic levels (hovering around a 50 percent voting rate of all eligible voters) for an industrialized, democratic society, the trend of elections becoming closer and closer has increased significantly over the last couple of decades. In fact, in 2000 and 2002, a significant number of congressional races (both House and Senate) were decided by a fraction of a percentage point and, in some cases, by fewer than a couple of hundred votes. Given the close party margins in both chambers of Congress, the following question is worth asking: can you, your family or your employees really afford to leave such important decisions – electing lawmakers – up to others?

Many people note lack of time or business travel as an excuse for not participating in elections. However, they forget the terrific option of utilizing early in-person or absentee ballot voting. Voter registration deadlines don’t even commence until October and many states allow voters to apply for absentee ballots well into October. A full 25 states do not even require ANY reason for utilizing absentee ballots. If there is any chance you may be out of town on Election Day, why not at least apply for an absentee ballot? Electronic communications make doing so easier than ever. To access information on obtaining voter registration materials or absentee ballot information, please visit www.nrmca.org and log on to our grassroots page to get state-specific information. NRMCA staff is also available to answer any questions you may have. So, come this November 2nd, don’t forget to exercise your civic duty and GET OUT THE VOTE!

What Can You Communicate to Employees Regarding Elections?
• Information about registering to vote, including deadlines and time frames
• Information about using absentee ballots, including deadlines and time frames
• You can make voter registration documents available to employees
• You can direct employees to county facilities to register to vote
• You can provide employees with time to vote on Election Day
Why trust your productivity and reputation to equipment that doesn’t have one?

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- gives you a standard by which to compare products
- assures you that the product meets specific standards and provides maximum performance, operation and customer satisfaction
- confirms that the equipment will produce quality concrete
Getting the Most from Your People: What Color Are You?  

By Jay Gubrud

The paradox of being a leader is that while your people can be your biggest asset, they can also be your biggest liability. They open the doors each day, serve your customers and play essential roles in your organizations. Without them, your business could not run. At the same time, they provide the biggest challenge in running an efficient and effective organization. If you do not have the support of the people around you, then it will be nearly impossible to accomplish your mission.

The easiest way to get their support is to enhance your relationship with them. The Golden Rule says, “Treat others how you would like to be treated.” Most of us are familiar with the Golden Rule. It is a great rule, yet in my opinion, it can be improved upon. The challenge to the Golden Rule is that there are many personality types. Those different types have different values, beliefs and preferences. There are 1440 personality inventory tools on the market and if you boil down most of them, you find there are four major categories of personalities. Each category has different needs. As a result, the best way to treat others is how they want to be treated.

The reality is that we can get what we want as a manager or director by giving others what they want. Treat them in a way that appeals to their values, beliefs and preferences.

Think about it! If someone were to come up to you and offer to give you something that you needed, how would you react? If someone offered to help you on a project or take some of your workload off your hands, how would you feel about that person? In most cases, you would be thrilled. Beyond that, you would probably want to give something back to them. It is a win/win situation.

The same holds true for personalities. Each personality has a preferred mode of operating. When we communicate and interact with that person in a way that connects with their preferred mode, then the communication has been more effective.

A gentleman I know works for an international agricultural company. He works hand-in-hand with a wide variety of personalities. His boss is a take-charge and bottom-line personality (Red). When he communicates with his boss, he gets straight to the point and is fully prepared. He also has to interact with an operations person that is laid back (White). When interacting with the operations person, he provides more detail and plenty of advance notice. As a result, he has maintained exceptional relationships with a diverse group of coworkers. And his division benefits from that cohesiveness.

If you want to see big improvements in the effectiveness of your organization, especially during times of mergers, doing more with less and shrinking margins, take control of one of the few things you can control — how you communicate with the people around you. Take some time to identify the personality types you work with and start giving them what they need. Better yet, try this with one of your more difficult employees and see how things change. I promise that if you actually try it, you will see the results quickly.

For more than seven years, Jay Gubrud has helped associations, their boards and members eliminate roadblocks to success. His theme is very unique and one everybody can relate to...cars and driving! You can reach him at www.jaygubrud.com or 651/635-9939.

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<table>
<thead>
<tr>
<th>TYPE</th>
<th>CLUES</th>
<th>NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow (Popular)</td>
<td>Center of attention  Relationship driven  Adaptive</td>
<td>Public applause  Approval  Attention  Understand big picture</td>
</tr>
<tr>
<td>Blue (Perfect)</td>
<td>Well dressed  Orderly  Reserved</td>
<td>Have to be organized or it bothers them emotionally  Understand their sensitivity  Respect their personal space  Specifics</td>
</tr>
<tr>
<td>Red (Powerful)</td>
<td>Bottom line  Sense of urgency  Goal driven</td>
<td>Answers to questions  Acknowledge that they did a task  Are usually right  Need to control</td>
</tr>
<tr>
<td>White (laid back)</td>
<td>Understanding driven  Creative  Seeks information</td>
<td>Information  Appreciate the person for who they are  Show respect  Advance notice</td>
</tr>
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Source: The Color Code by Taylor Hartman Ph.D.
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Located among the firs tucked along the Cascade Mountains of Washington is a locality known more for its abundance of fine fishing and deer hunting than its past. Situated on the banks of the Baker River where it joins the Skagit, it is winter home of nesting bald eagles. The town’s time has come and gone, but still pulsates with the energy of any small community located far from the hustle and bustle of major metropolitan cities. Life is slower; everyone knows your name, and the Friday night high school football games play to a faithful crowd. The high school teams are known as the “Concrete Lions.” But this town has a different, more unique story; one rich in the history of building these metropolitan cities, one that helped shape the development of the Pacific Northwest, and it was all built on cement and concrete.

The town of “Concrete” was the site of Washington State’s first cement production facility. Founded on a deep and rich deposit of limestone and clay, the town became the center for manufacturing Portland cement. At its peak, there were six kilns in operation with a combined capacity of 5,200 bbl per day, each powered by sub bituminous coal purchased by rail from the Bellingham Coal Company. Limestone was first transported from the quarry to the mill by a two-mile standard gauge railway and sometime before 1930, converted...
Concrete

By Bruce Chattin, Washington Aggregates & Concrete Association

to an aerial tramway with a capacity of 260 tons per hour.

When in full operation, as many as 200 men were employed, but the average workforce was 160. With a population of 1,000 (circa 1930), it wasn’t hard to figure out what was at the core of this small town — Portland cement.

The Washington Portland Cement company began construction on its new plant June 1, 1905 and produced its first cement in May, 1907. But growth and plenty of future made the need for a second cement plant necessary. Another driving factor was the planned “Chittenden locks” just outside of Seattle so ships could pass from Puget Sound out to sea. A second cement plant was built; Superior Cement began to manufacture Portland cement in 1908. The Superior Plant employed the dry process originally, but later converted to the wet process in 1917. In 1918, the Superior
Cement Company purchased the Washington Cement Company and shut down its plant. Superior Cement then became the oldest cement plant operating in the state of Washington. The plant continued under the operation of Lone Star Cement until 1967 and the business office remained in operation until 1973 when the plant formally shut down.

But the story doesn’t stop there. It could be urban legend or just the historical pride of the town and the competitive nature of its workers. As the West was expanding, pioneers came to the Baker area in the late 1800s and settled on the banks of the Baker River sometime around 1871. Washington didn’t become a state until 1889. In 1890, the town site was officially platted and businesses began to grow under the name of “Baker,” Wash. But across the river, the new Washington Portland Cement settlement grew up and became known as “Cement City.” It seems the town took on the personality and ownership of its favorite industry. Story has it “Star Cement” was a brand name of one of the cement companies and each town hailed from under each name, “Star City” and “Cement City.” In 1909, after much debate, the new community finally settled on the name of “Concrete.”

In fact, as you walk along Main Street, a short section of town that still houses the original structures, it seems there was another reason why this little town took on the name of Concrete. In or before 1920, at least once and possibly twice, the town or parts of it burned down. And each time they rebuilt it, except the last time. They decided that rather than continue this self-imposed building boom they would build it differently. And they did — in concrete. The liquor store and bank each have signs today that indicate when they last rebuilt the structure, only this time for good and the structures still stand today.

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come and gone, the town remembers its origins. As you enter the town on Hwy. 20, slow down because there is a well-known speed trap there. And yes, the “Concrete police” will get you. Been there, done that…

The first things you see are the old silos with “Welcome to Concrete” proudly yet faintly visible from the roadway. The open space surrounding the silos is known as “Silo Park.” Signs are posted near the old cement plant facilities known as “Superior Row” where concrete remnants of the town’s history remain: the “Historic Business Office” and the “Safety Sculpture” that once greeted visitors when they entered the site.

Lone Star, now Glacier Northwest, still plays a role in the small community, has helped provide improvements to Silo Park and still brings customers to visit the very first cement facility in Washington. In its prime, a “Company Club” was available to anyone who wanted to visit the plant. The club featured an excellent chef and included dining quarters and cottages for quests. Glacier Northwest still hosts guests and customers at the “Clinker Club” after a day of guided salmon fishing on the Skagit River.

So if you are ever driving west outside of Sedro-Woolley out Hwy. 20, and after you slow down from 55 to 20, you’ll enter the Town of Concrete. If you can, catch a football game on a Friday, give a cheer for the Concrete Lions and munch a burger at the drive in. In Washington, this little town is an interesting part of our history. A history that helped build and shape the future of the Puget Sound, all based on the building materials we like to think are the very best: Portland cement and concrete.

For more information, contact Bruce Chattin, executive director of the Washington Aggregates & Concrete Association, at bchattin@washingtonconcrete.org or (206) 878-1622.

The opinions expressed in this article are those of the author and do not necessarily reflect the opinions of the National Ready Mixed Concrete Association.
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Simulators for airplane pilots are commonplace. Every pilot goes through extensive simulator training. The equipment generally cost millions of dollars but their use is mandatory. In recent years, simulators have come to the trucking industry. Many of the major trucking companies use state-of-the-art technology to train their professional drivers in the same way that professional pilots are trained. Driver training simulators allow drivers to experience situations that they encounter every day and also expose them to situations that in reality would be extremely dangerous with no other way to practice or assess a driver’s response.

The National Ready Mixed Concrete Association first started looking at simulators when the Concrete Delivery Professional (CDP) program was being developed in 1999. The CDP task force visited Lockheed Martin, an industry leader in simulator development, and viewed a state-of-the-art system. At that time, problems associated with the cost, industry specific graphics and availability to individual members could not be overcome. Earlier this year, the group visited a GE driver simulator outside of Atlanta. The prices have come down considerably, but convenient, on-demand availability was still an issue.

With hope renewed, a PC-based system was displayed for the NRMCA Transportation Safety Task Force in Silver Spring, Maryland. This low-cost system, designed for over-the-road carriers, is available at a cost of less than $5000. While driving the simulator, drivers have a realistic view of the terrain and conditions around them. The driver can see what is in front, behind and to the sides of their truck. Computer graphics simulate a variety of traffic and geographic situations — mountain passes, interstate highways, small towns, urban areas and rural roadways are all represented. The system also simulates various climatic and road conditions, and supports different trailer types and weights.

NRMCA staff has been in contact with the simulator developer. Discussions have been positive in respect to developing software and hardware that are ready mixed concrete-industry specific. The graphics would depict mixers backing into jobsites, pulling out from plants, and washing out at reclaimers as well as other real world conditions. The next step will be to have a working draft of software and hardware configurations for review by the NRMCA Operations, Environmental and Safety Committee at their October 3rd meeting in San Francisco.

Jones is safety director for Irving Materials and can be contacted via email at imirtjones@aol.com.
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Growing Markets
for Architectural and Decorative Concrete

By Jamie Farny, Program Manager, Portland Cement Association

The decorative market has been continuing to gain strength in the past few years, and is often referred to as the fastest growing segment of the industry. It’s important for the attention it brings to concrete construction. It turns the ubiquitous material that is taken for granted, or barely noticed, into the main attraction. Decorative concrete is to plain concrete as a luxury edition car is to the base model. Both vehicles may get you from one place to another, but who doesn’t want to look good doing it?

Value-Added Products

Architectural and decorative concrete are premium products. They are not for every application. They cost a little more and look a lot better. Sometimes they add an aspect of safety to a project. They can be applied to most types of construction, including commercial, industrial, retail and residential buildings. The following list of examples is by no means complete:

- exterior walls
- retaining walls
- white or colored interior floors
- exterior flatwork, such as driveways, patios, plazas, pool decks
- curbs and gutters, medians, planters
- bridge parapets and barrier medians
This compilation CD contains promotional and technical literature, a presentation, a photo library, and links to related resources, tools useful in growing anyone’s decorative concrete business.

Stamping concrete has advanced dramatically since its beginnings. This concrete has been colored and textured so that it resembles a natural slate.

This colored concrete garden plaza provides a pleasant outside space for visitors to sit and relax.
As value-added products, architectural and decorative concrete can expand producers’ offerings and increase their profit margins. For consumers, the products are long lasting and aesthetically pleasing. It’s a win-win situation for producer and buyer alike.

Where We Started

Several years ago, Portland Cement Association formed a White Cement Subcommittee in response to the increasing interest in architectural and decorative concrete. PCA focused on this area because white cement is the key ingredient for achieving good results in decorative concrete projects. A pure white product, it provides the best base for tinting.

A strategic plan was developed, which included market research and focus groups to get an idea of market conditions at that time. They found that many people who worked with cement and concrete every day—architects, engineers, contractors and ready-mix producers—didn’t even know that portland cement was available in a white formulation. So the first obstacle to overcome was lack of awareness within the construction industry.

Owners and purchasers were also found to be largely unaware of the product or its capabilities. Some thought all concrete was white. Others didn’t know they could get colored concrete to take on such a wide range of appearances. Or use it for so many different projects on their properties, whether corporate buildings, retail establishments or residential developments. Therefore, buyer awareness also factored heavily into what the program would need to accomplish.

Another issue was the perceived difficulty in working with white or colored concrete. Focus groups studied contractors and specifiers to learn about their experiences. Some had very good results in special applications: colored driveways, yellow safety curbs and white barrier medians. Others noted a strong resistance to using products formulated with white cement due to uncertainty about results or ease of handling.

PCA’s Program

Given the challenges from producers and end users, it was obvious that promoting white and colored concrete had to be done from both directions to be effective. So, a two-pronged program was created to 1) increase awareness among specifiers and 2) support ready mixers to be able to meet a growing demand for decorative concrete. Idea brochures were distributed to architects.
We don’t do software, but we can appreciate the “point-and-click” advantage of front discharge delivery. You will, too.
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specifiers and owners so that they would start asking for decorative concrete products. Technical information was updated and expanded so that engineers, contractors and ready mixed producers would know how to work with concrete that contained white cement.

The Art of Concrete is one of the backbones of PCA’s program. It’s a colorful brochure targeted to specifiers that talks about the beauty, versatility and value of white cement concrete. It presents cast-in-place, precast and tilt-up projects to show how white cement concrete can be used to create imaginative, attractive and energy efficient buildings and other structures.

The Versatility of Concrete is also an idea brochure, geared heavily to homeowners and homebuyers to get them thinking about where they can use concrete products around their homes. Inside or outside, top to bottom, from countertops and floors to roof tiles, driveways, patios, pool decks and retaining walls, cement-based products offer durability and bring a high level of quality to any property.

Several case studies highlight successful applications of white and colored concrete. White Concrete Brightens Highways of Hope talks about white concrete parapets on the Pennsylvania Turnpike. Ready Mix: Making the White Decision profiles a successful D.C.-area ready mixer and gives several examples of projects where white cement made a difference, including the Dulles Airport Expansion. Super Floors for Supermarkets examines how one ready mixed and contractor team has been building light reflective floors for grocery stores in the Pacific Northwest. And White Concrete: New Avenues of Safety takes a look at North Avenue in Chicago, where white curbs and medians mix with decorative tinted precast planter boxes to improve the safety and aesthetic aspects of a city street with heavy pedestrian traffic.

Technical materials range from two-page tech briefs focused on a single topic (surface variety, light reflective floors, and mixing...
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Putting It All Together

All of the previously mentioned items were compiled onto a compact disc, Exploring the Art of Concrete, to bring all the elements of the program together. The CD has the technical manual in three languages—English, Spanish, and French. There is a PowerPoint presentation based on The Art of Concrete that guides readers through the brochure benefit by benefit. There’s a collection of images from the publications for use in marketing or promotional activities. And it also contains a historical document library of architectural concrete literature from the PCA archives. If still more information is needed on a particular topic, links to other...
Concrete-related associations show just where to find help to make projects successful.

All these efforts support the ready mixed industry by providing producers with the materials they need to be successful. It expands product lines. It creates more knowledgeable purchasers and specifiers. The net effect is increased business opportunities for ready mixed producers.

And the opportunity is there for those who want it. Since 1999, gray portland cement usage has consistently run above 100 million metric tons per year each year. Although white cement accounts for only about 1 percent of total annual cement tonnage, that adds up to a lot of white and colored concrete work for the ready mixed industry, precasters, and others.

Good Results

Getting the message out to all the right people is essential. Trade shows, mailings, website traffic and presentations are all important aspects of reaching the target audience. For the past few years, PCA has been spreading the word in all of these ways, using the literature described above.

Early findings by the PCA Market Research department point to a start in the right direction. Using market research surveys, six questions on white or colored concrete were posed to homebuilders and buyers. Results show an increase in awareness and interest from 2001 to 2003. Not only were people more knowledgeable about various white and colored concrete products offered, they were also more likely to consider building with them or purchasing them in 2003 than they had been in 2001.

Decorative concrete is hitting its stride, so the timing is right for all of this information. People and corporations spend a lot of money to create safe, comfortable and durable buildings and properties. They look for attractive surfaces, interesting finishes and long-lasting results. Concrete, with its architectural and decorative capabilities, is often their product of choice. Or could be, if the awareness of its potential is promoted.

Don’t Forget It’s Green

There are sustainability aspects of decorative concrete, too. Ingredients are locally available and plentiful, like sand and gravel. Concrete’s durability makes the products cost effective over many years. When the time eventually comes, the products do wear out and may need to be replaced, but because concrete is recyclable, the environment is not unduly burdened.

Concrete offers thermal mass for buildings, saving energy for heating and cooling. Light-colored floors save energy for interior lighting. Light-colored pavements reduce the urban heat island effect. Concrete itself is a low-embodied energy material.

For more information about PCA’s white cement program, contact Jamie Farny, program manager at PCA, at 847/972-9172. To see (free) electronic versions of many of the documents described here, visit the Architectural and Decorative Concrete homepage of the PCA website at: www.cement.org/decorative.
Establishing a Center for Concrete Research

By Karthik Obla, Director of Research & Materials, NRMCA

The National Ready Mixed Concrete Association established a research facility as early as 1928. This research laboratory has been dedicated to concrete and aggregate research and industry training and certification programs ever since. Pioneering work by the association, as directed by its committees, has helped establish many of the standards and specification requirements for ready mixed concrete. The primary focus of NRMCA's research activities has always been on practical issues that benefit or impact the industry. These have included improvement of standards, material evaluation, troubleshooting and developing tools and methods to enhance the quality, predictability and uniformity of ready mixed concrete and aggregates for construction. The research and technical activities of NRMCA established its credibility and respect early with the strong leadership of people like Stanton Walker, Delmar Bloem, Richard A research cooperation agreement was signed on May 10, 2004 between The University of Maryland, Department of Civil and Environmental Engineering (UM-CE) and NRMCA towards establishing a Center for Concrete Research (CCR). The intent is to use the synergies of the academic community with the established NRMCA research laboratory to conduct applied research that benefits the industry. The agreement is expected to be mutually beneficial for both parties and there is potential for adding other organizations in the future. The agreement was signed by James Russ, NRMCA past chairman, on behalf of NRMCA and Dr. Ali Haghani, professor and chair of the Department of Civil and Environmental Engineering on behalf of UM-CE. Robert Garbini, Colin Lobo, Karthik Obla from NRMCA and Dimitrious Goulas from UM-CE were also present.
Gaynor, Richard Meininger and Jon Mullarky. In 1998, the research and technical contributions of the NRMCA research program were recognized by the American Concrete Institute with the prestigious Arthur R. Anderson Award. Beyond technical issues and standards, the laboratory supports NRMCA initiatives in promotion, regulatory compliance and operations areas.

The NRMCA research facility has been located in College Park, Maryland, about 2 miles from the University of Maryland campus, since 1974. The research facility is supported by the members of the association and represents a benefit of membership in the NRMCA. This benefit is through the development of technical data that supports industry initiatives and the availability of the research facility for member product evaluations or consulting services at below market prices.

The research facility consists of a 5000-square-foot building that maintains resources for standard and innovative testing of concrete and aggregate. The building has two strength testing machines and four environmentally controlled rooms for curing and testing materials under controlled temperature and moisture conditions. The NRMCA research laboratory participates in proficiency sample testing of the Cement and Concrete Reference Laboratory (CCRL), is inspected biannually for conformance to the requirements of ASTM C 1077 and maintains its accreditation under the AASHTO Laboratory Accreditation Program.

As industry pressures and initiatives have increased in the areas of concrete promotion, education and advocacy on the legislative and regulatory fronts, NRMCA has responded by elevating professional expertise in those areas. This has caused a reevaluation and some degree of constraint on the research initiatives. Simply put, the research facility has to generate revenue in addition to member support to elevate its resources and capabilities. The industry’s commitment to research and education, however, is clearly demonstrated in the pledges of approximate $14 million to the RMC Research Foundation and the projects currently being funded by that organization.

NRMCA is currently working on establishing a Center for Concrete Research (CCR). As currently proposed, the CCR will be a consortium between NRMCA, the University of Maryland (UM) and the Middle Tennessee State University (MTSU). Interest of the participation of other universities in the CCR is being solicited. A concrete research consortium that partners industry initiatives with academia is seen to be of mutual benefit. The CCR will have a clear understanding of technical issues facing the industry through the direction of the NRMCA’s Research, Engineering and Standards (RES) Committee and the participation of its engineering division staff in standards-setting organizations. Academic institutions bring with them their research expertise and ability to solicit research grants from other organizations that funds the education of graduate and undergraduate students. This synergy ensures that the participating academic institutions are connected to industry needs and develop research initiatives that will have an immediate impact and benefit to the industry. Students working on these research programs are also more tuned in to the concrete industry, will likely join its workforce and thereby elevate its technical competence and credibility.

As the ready mixed concrete industry has progressed to a higher level of technical competence and product development, the argument has been made that individual companies can work on these initiatives themselves.

The primary goal of the CCR is to become nationally recognized for its expertise in applied concrete research. Applied concrete research here is defined as that research that will have an impact on the ready mixed concrete industry in the short term of less than four years. Examples of current topics of interest are: self consolidating concrete; concrete maturity; optimizing mix designs for performance; effects of aggregate grading and other characteristics; evaluation of new methods for acceptance such as the air void analyzer or microwave oven test; predicting setting characteristics of concrete; alkali silica reactivity tests; pervious concrete; effects of aggregate fines; concrete mixtures for sustainability; sorptivity and other tests to evaluate durability/cracking; and reuse of returned or recycled concrete and wash water. The ready mixed concrete industry needs to have a framework and a resource, represented by the proposed CCR, to address these technical issues that continually arise. Technical data
provides a stronger basis to support industry positions than opinions or conjecture. Credible and unbiased technical data ensures a proper dialogue in lieu of being dictated to. The CCR will focus on those topics that are most likely to influence the ready mixed concrete industry in a significant way within the next four years. It will help build industry positions on these technical issues as well as foster a positive technical change in the ready mixed concrete industry. In addition, CCR will also research topics that save cost, increase market share, or provide educational value for the ready mixed concrete producer.

NRMCA member companies will substantially gain from CCR’s work. Some potential member benefits are:

- High quality research reports on state-of-the-art subjects that will impact a member company’s business practice.
- Help formulate industry positions on important issues that progress the ability of the industry to be more in control of the product they produce.
- Members can use the CCR reports for marketing purposes.
- Research results can potentially reduce cost to the industry and increase concrete market share.
- Develop educational information of value to the industry and its customers.

As the ready mixed concrete industry has progressed to a higher level of technical competence and product development, the argument has been made that individual companies can work on these initiatives themselves. The reality is that the laboratory facilities of most companies have their hands full with daily QA-QC activities, trouble shooting and product development for their specific needs and do not have time or resources to devote to initiatives or research that will have an overall impact on the concrete industry. When they do spend time on these initiatives they would only benefit from the CCR’s work that will surely shorten their learning curve. One example is the NRMCA’s research on the reuse of wash water that has to translate to a company’s specific materials and production processes.

In addition, CCR will offer other member benefits that are equally important. They are:

- High quality consulting testing at below market costs for members, thus helping them reduce costs. Many members cannot perform these tests.
- Educate industry personnel and testing technicians for industry certification programs and promote the development of performance-based concrete mixtures.

CCR’s programs will be jointly managed by NRMCA’s engineering staff and UMD with substantial input from NRMCA’s RES committee. Apart from significant investments from NRMCA, CCR will depend upon funding from sources such as the RMC Research Foundation and external agencies such as state and federal highway agencies and other opportunities available to the university partners. If you are interested in the planned activities of CCR, please contact NRMCA’s Colin Lobo at clobo@nrmca.org or Karthik Obla at kobla@nrmca.org.
The American business community is constantly coming up with buzz words & phrases that find their way into our everyday lingo. Remember “networking” & “out of the box thinking” or how about “dot-com?” One of the newer terms is “Sustainability,” perhaps this one will stick around for no other reason than the definition of the word. Another buzz word for the construction industry is LEED™, referring to the Leadership in Energy and Environmental Design standard developed by the U.S. Green Building Council (USGBC).

LEED was created to:
• Define “green building” by establishing a common standard of measurement
• Promote integrated, whole-building design practices
• Recognize environmental leadership in the building industry
• Stimulate green competition
• Raise consumer awareness of green building benefits
• Transform the building market

All right, so what does this mean to us as ready mixed producers? Well, if we indeed manufacture "the most versatile building product in the world,” and we are truly committed to “sustainability,” then we better get on this train in a big way!

Some of the largest concrete consumers in the nation are members of the USGBC. Companies like Centex Construction, Clark Construction Group, DPR Construction, Gilbane Building Company and Kiewit Construction Company are just a few of hundreds of our customers who have joined the council to help bring value back to their customers.

In a nutshell, the LEED system works on a point system, assigning credits through the use of specific rating criteria. The more environmentally and energy efficient, the higher the point rating achieved. Additional points can be added for using recycled materials. Use of reclaimed aggregates, as well as costs saved from not transporting that material, can gain you credits. The scheme attempts to take a comprehensive look at the whole environmental big picture. The LEED system does not have a provision that allows credit for using recycle water in the mix. This example highlights one area where NRMCA hopes to influence the USGBC standard.

Let me give you an example of how LEED has helped my companies in the recent past, and can do the same thing for the entire industry. In one of our markets, a LEED-certified project was in the pre-bid stage. Part of the pre-qualification process entails meeting safety and bond requirements along with the development of a resume demonstrating the ability to deliver quality concrete in an environmentally sound manner. Also required is the mandatory completion of a LEED worksheet depicting the material supplier’s dedication to environmental compliance as well as a description of their recycling capabilities. Because of our company’s history, along with awards and efforts to increase recycling and exceed environmental standards, we were awarded the project at higher unit pricing than our competition!

This account is a prime example of what we as an industry have been trying to do since the first days of RMC 2000. Our goal was to convince the general public (and unfortunately some in our own ranks) that we are not selling a commodity, but indeed one of the most environmentally friendly and versatile building materials in the world. As I try to convey to our students in the NRMCA Environmental Course, a “proactive” as opposed to a “reactive” approach to environmental compliance can be a profit center instead of a liability. The above example is living proof!

NRMCA is currently working with the USGBC to examine their credit scheme and to encourage a system that takes into account the benefits of building with ready mixed concrete. NRMCA endeavors to increase our share of points on a given LEED project to further set us apart from competing building materials such as asphalt and steel. Other efforts underway focus on the nationwide promotion of our environmentally friendly products like pervious pavements, tilt up walls and insulated concrete forms.

For more detailed information on the Green Building Council and the LEED program, go to their website at www.usgbc.org or make plans to attend the next NRMCA Environmental Course in November, 2004.
If you haven’t already supplied concrete for a LEED project, there is a good chance you will soon. LEED, which stands for Leadership in Energy and Environmental Design, is a rating system that is quickly becoming the standard for green building design and construction. It was developed through a consensus process by the United States Green Building Council (USGBC), a non-profit organization dedicated to promoting buildings that are environmentally responsible, profitable and healthy places to live and work.

The LEED rating system is credit-based, allowing projects to earn points for environmentally friendly actions taken during the design and construction process. A project requires a minimum of 26 points to be LEED certified. There are advanced levels of certification, including silver, gold, and platinum, requiring a minimum of 33, 39 and 52 points, respectively. There are five core credit categories to obtain LEED points: Sustainable Sites worth up to 14 points, Water Efficiency worth up to 5 points, Energy and Atmosphere worth up to 17 points, Materials and Resources worth up to 13 points, and Indoor Environmental Quality worth up to 15 points. There is a sixth category called Innovation and Design Process for an additional 5 points. There are a total of 69 LEED points available.

The LEED point system is not defined in terms of materials or specific systems but describes credits in general terms. Concrete can play a significant role in obtaining LEED points in every credit category. For example,
The Clearview Elementary School in Hanover, Penn., incorporates concrete to achieve LEED Gold certification. The project was built using insulating concrete forms to obtain LEED points for energy efficiency and used high volumes of slag in the concrete to obtain LEED points for recycled content. Concrete also helped achieve LEED points for using regionally manufactured and harvested materials. At left: NRMCA is a registered provider with the American Institute of Architects Continuing Education Systems (AIA/CES) and offers several seminars on concrete technology including LEED Green Building Rating System and Concrete.
one LEED point is earned for using a light colored pavement, such as concrete, for 30% of a site’s paved surfaces. Using pervious concrete pavement to reduce stormwater runoff can earn one LEED point. Using energy efficient wall systems, such as tilt-up concrete walls or insulating concrete forms, can contribute to gaining LEED points. Concrete contributes to available LEED points by using regionally manufactured materials—concrete is made within a 500-mile radius of a building site and most of the materials are also harvested within 500 miles of the site.

Concrete also contributes to LEED points available for using recycled products. The requirement is to use materials with recycled content such that the sum of the post-consumer recycled content plus one-half of the post-industrial recycled content totals 5% for 1 point or 10% for 2 points. The calculation is based on value or cost of materials. The value of the recycled content portion of a material is determined by dividing the weight of recycled content in the item by the total weight of all materials in the item, then multiplying the resulting percentage by the total value of the item. Supplementary cementitious materials (SCMs) such as fly ash, slag and silica fume are considered post-industrial recycled content.

Example: Assume a project is built using tilt-up concrete walls, slab-on-grade, concrete footings and a concrete parking area. The total project cost is $5 million and the total cost of materials is $2.25 million. The total amount of concrete used on the project is 1,850 cubic yards at a cost of $70 per cubic yard. The mix design calls for 225 pounds of fly ash per cubic yard. The recycled content rate is calculated as follows:

\[
\text{Recycled Content Rate} = \frac{\text{Recycled Content Value}}{\text{Total Value of Item}}
\]

To obtain one LEED point for this project, recycled content rates for all other items must total 4.84% or more to achieve the 5% minimum requirement. Other strategies for increasing recycled content in concrete include using flowable fill that contains high volumes of fly ash, using recycled aggregate.

*post-industrial recycled content is given 1/2 credit.
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The seminar was developed to provide continuing education for architects and engineers but also serves as an excellent introduction to LEED for ready mixed concrete producers.

in concrete, or using other SCMs such as slag in concrete.

There is also an opportunity to obtain another LEED point by using SCMs in concrete. The USGBC has issued a Credit Interpretation that states that one Innovation Point will be awarded for reducing the total portland cement content in concrete. The requirement is to reduce the total carbon dioxide (CO2) for all concrete on a project by a minimum of 40% from standard baseline mixes. Concrete must make up a significant portion of the work. The assumption is that 1 pound of portland cement is equivalent to 1 pound of CO2. Baseline mixes are defined as standard 28-day compressive strength mix designs for the region. SCMs allowed include fly ash, slag, silica fume and rice hull ash.

Example. Assume the structural requirement for concrete is 4,000 psi. The standard mix design for the area uses 564 lbs. of portland cement per cubic yard. To obtain one LEED point, one would need to reduce the portland cement content by 40% or by 227 lbs. One strategy would be to require compressive strength to reach 4,000 psi at 90 days instead of 28 days, which could result in a reduction of portland cement by 100 lbs. An additional 127 lbs of portland cement could be replaced with fly ash to achieve the required 40% CO2 reduction.

Keep in mind that if the standard baseline mix for the region already contained fly ash or other SCMs, then obtaining the LEED Innovation Point for reducing CO2 in concrete would be even more difficult.

If ready mixed concrete producers are going to play a key role in green building they must have a thorough understanding of the LEED process. By working with architects, engineers and contractors to maximize LEED points, producers will help concrete develop a competitive advantage over other materials.

For starters, concrete producers should consider taking NRMCAs seminar titled LEED Green Building Rating System and Concrete. The seminar was developed to provide continuing education for architects and engineers but also serves as an excellent introduction to LEED for ready mixed concrete producers. To arrange for a seminar, contact Lionel Lemay, senior director of applied engineering at NRMCA, LLemay@nrmca.org, (847) 918-7101. Visit www.nrmca.org for additional information on continuing education available from NRMCA.

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In January 2002, the Occupational Safety and Health Administration (OSHA) changed its requirements for recording occupational injuries and illnesses. Forms, new cases and general reporting criteria as well as other categorical items were redefined. With only a few exceptions, the new standard streamlined the process and made the procedure easier to understand. None of the changes affected how incidence rates are calculated. However, one change in particular affected the severity rate, which is considered the indicator of how serious an injury/illness is. The severity rate is an arbitrary measure and is based on the days away from work from all injuries. After two years, the changes have been viewed as positive by most workplace safety and health practitioners.

**Forms**

The designation for the forms changed and a form was added. The current OSHA 300 log corresponds with the previously required OSHA 200 log, and the OSHA 300A summary is a new form that combines the injury/illness information located on the 300 log. The injury report is called the OSHA 301, and this has replaced the 101 supplemental report of injury. This form details items about an injury such as cause and preventive measures.

The greatest change is in the OSHA 300A summary log. The format is such that the user is allowed to easily tally the information in a way that facilitates incidence rates computation. The only additional piece of information that is needed and now is required by the standard to be kept by the employer is the number of employee hours.

The posting requirement for the 300A summary log is now ninety days, compared with either 28 or 29 days, depending on whether it is a leap year. Posting now must be done from February 1 through April 30 of each year.

**New Cases**

What constitutes a new case in the new standard? A new case occurs when an employee has not previously experienced an injury or illness of the same type in the same part of the body. Another example is when an employee experiences an injury or illness at work and has completely healed from that condition, but some event or exposure at work once again occurs that is of the same type and in the same part of
the body. The main points here are 1) that the employee has completely healed; and 2) that an event or exposure at work of the same type in the same part of the body occurred.

For example, a maintenance man is using a floor jack to lift a mixer truck in order to change a tire, and he experiences a rotator cuff injury that requires surgery to repair. He is given medical treatment and rehabilitation, and he returns to work. About one month after returning to work, he is walking from the shop to the plant and begins to feel pain of the same type in the same area of the body, but he was not performing work (no event or exposure). Is this a new case? This is not a new case since there was no work event that preceded the pain.

General Recording Criteria

There are a few major differences in recording injuries and illnesses between the old and the newer standard. The table below illustrates changes in the rules and provides guidance for the safety professional in making decisions related to OSHA 300 record keeping.

The question of whether a case was considered medical treatment or first-aid treatment could provide a challenge in the past. Under the guidelines currently in place, first-aid treatment is comprehensively defined, thereby providing better direction in how to categorize a case for recording (or not). Injury/illness cases that require only first-aid treatment do not have to be recorded on the OSHA 300 log. The treatments below constitute first-aid care, and therefore injuries that end in this type of care do not require being logged on to the OSHA 300 form.

- Using non-prescription at non-prescription strength;
- Administering tetanus injections;
- Cleaning, flushing or soothing wounds on the surface of the skin;
- Using wound coverings such as bandages, Band-Aids, gauze pads, etc; or using butterfly bandages or Steri-Strips;
- Using hot or cold therapy;
- Using any non-rigid means of support, such as elastic bandages, wraps, back belts, etc;
- Using temporary immobilization devices for transporting accident victims;
- Drilling a fingernail or toenail to relieve pressure, or draining fluid from a blister;
- Using eye patches;
- Removing foreign bodies from the eye using only irrigation or a cotton swab;
- Removing splinters or foreign objects from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means;
- Using finger guards;
- Using massages; or
- Drinking fluids to relieve heat stress.

Under its Data Collection Initiative, OSHA gathers injury and illness information from some 80,000 businesses each year, and the agency uses the statistics to form the Site Specific Targeting Program. The central focus of the effort is to direct agency resources where they are most needed – to those sites where the most injuries and illnesses occur. The OSHA 300 log contains the basic information that drives the targeting program, and these metrics must be as accurate as possible. By following the guidelines here, companies can create improved injury and illness reporting.

For more information, Rick Maidens, US Concrete, can be reached via email at rmaiden@us-concrete.com and Thomas Harman, NRMCA, can be reached via email at tharman@nrmca.org.

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<table>
<thead>
<tr>
<th>RECORDING CRITERIA</th>
<th>OLD STANDARD</th>
<th>CURRENT STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restricted Work Activity</td>
<td>When employee cannot work full shift; or when employee cannot perform normal job duties (defined as duties expected to perform anytime in calendar year)</td>
<td>When employee cannot work a full shift, excluding day of injury; or when employee cannot perform normal job duties (defined as duties expected to perform at least once per week)</td>
</tr>
<tr>
<td>Day Counts for Days Away From Work</td>
<td>Count only scheduled work days with no limit on number of days</td>
<td>Count calendar days with limit of 180 days</td>
</tr>
<tr>
<td>Medical Treatment</td>
<td>Does not include: visits to MD for observation only; diagnostic procedures; first-aid</td>
<td>Does not include: visits to MD for observation and counseling only; diagnostic procedures including prescription medication for diagnostic purposes; first-aid</td>
</tr>
<tr>
<td>Recording a Hearing Loss</td>
<td>1 criteria: 25dB shift (hearing loss) from original baseline</td>
<td>2 criteria: employee experienced standard threshold shift (STS); and employee's total hearing level is 25 dB or more above audiometric zero in the same ear as the STS</td>
</tr>
<tr>
<td>Privacy Cases</td>
<td>No provision for privacy issues</td>
<td>Must list “Privacy Case;” keep separate list with assigned case number and name; and keep in secure location</td>
</tr>
<tr>
<td>Employee Access to Injury/Illness Record Keeping Logs</td>
<td>Employee access to entire log, including names; no access to supplemental report of injury</td>
<td>Employee and his/her authorized representative access to entire log; employee access to entire supplemental report</td>
</tr>
<tr>
<td>Highway Fatality</td>
<td>Required to be recorded on log</td>
<td>Not required to report motor vehicle fatality occurring on public highway or street unless accident occurs in construction zone</td>
</tr>
</tbody>
</table>
The OSHA Inspection – Are You Ready?

By Thomas Harman, M.S., CSP
Director of Safety Compliance, NRMCA

When OSHA shows up at a ready mixed concrete plant, and the compliance safety and health officer (CSHO) shows his/her credentials, some plant managers are surprised. Surprise turns into anxiety when the CSHO begins asking to see injury/illness reports, training records, job procedures — in short all the safety and health items mandated by the Occupational Safety and Health Act of 1970 that operators must maintain. Ready mixed concrete plant operators can prepare for the inspection by understanding the audit process and ensuring compliance as it relates to our industry.

The OSHA audit process is divided among three parts: the opening conference, the inspection and the closing conference. During the opening conference, the CSHO presents credentials from the Department of Labor and communicates the scope of the inspection; this provides an opportunity for the employer to ask any questions about the inspection. For example, a complaint may have initiated the review. Similarly the inspection may be a random programmed inspection or health inspection.

CSHOs first view records and reports. Employers must maintain the OSHA 300 log and summary for five years. The inspector may also ask to see the supplementary injury and illness information, which is a more detailed description of the injury or illness event. Ready mixed concrete employers also must train employees in hazard communication, confined space work, lock out and tag out, and at many companies, respiratory protection.

The OSHA representative then starts the walk-around portion of the inspection. He/she may go to any portion of the plant and may privately interview employees along the way. The inspector will likely ask employees what types of training the employer has provided, such as how to operate a fork lift or how to safely clean out a mixer drum. The inspector is looking for validation that employees have received training that is appropriate for their type of work.

An employer representative must accompany the CSHO at all times during the inspection process. When the inspector takes notes or pictures, or takes a measurement, then the representative of the employer should do the same. Therefore, the employer agent needs a note pad and pen, a measuring device such as a tape measure, and a camera. This ensures that everyone has a clear understanding of the condition should citations be issued. In the event that the CSHO conducts health sampling, as in the case of testing for exposure to respirable crystalline silica, then the employer should collect an air sample, too.

Optional equipment for the employer rep is a personal dust pump. This ensures the air sample is valid; the same exposure level should be seen in each of the two samples.

During the closing conference, the CSHO reviews findings or recommendations. The inspector also indicates the conditions and/or practices that are likely to be cited. If the employer disagrees with the inspector’s findings, then the closeout provides an opportunity to appropriately address the dispute.
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Business Models in a Consolidating Ready Mixed Concrete Industry

By Will Hill and Brian Moore, FMI Corporation

The ready-mixed concrete industry is consolidating. In this article we report our assessment of the market conditions in the industry and present a series of business models that are appropriate for the conditions that exist in the marketplace. We believe that the key to survival in a consolidating market—and more importantly the key to success—is to develop an understanding of the business climate and to determine how best to adapt your particular strategic response to that climate.

Why is Consolidation Occurring in the Ready Mixed Industry?

Consolidation is not a new phenomenon. It has taken place across a wide range of industries in the United States, impacting everything from trash collection to power generation. Regardless of the type of industry, however, consolidation typically occurs where the following business characteristics exist:

- Large, mature marketplace
- Highly fragmented
- Potential for economies of scale
- Opportunities for vertical integration or service expansion
- Motivated sellers

The ready-mixed industry certainly exhibits each of these characteristics to some degree; however, it is the strategy of vertical integration that has driven the consolidation activity of the last decade.

The consolidation of ready-mixed concrete has its origin in the consolidation of one of its key ingredients, cement. The cement industry began consolidating in the 1960s. Today, the top 10 U.S. cement man-
ufacturers are responsible for approximately 75 percent of U.S. production (See Table 1).

Table 1 - TOP TEN U.S. CEMENT PRODUCERS
Lafarge North America
Texas Industries
Holcim (U.S.)
Essroc Italcementi Group
Cemex USA
Lehigh Cement
Buzzi Unicem USA
California Portland Cement
Centex
Ash Grove Cement

Cement is an effectively consolidated market. This is not to suggest that the list of companies found in Table 1 will remain unchanged, but rather to suggest that the relatively high degree of concentration of production means the marketplace will generally exhibit the behaviors of a consolidated industry.

The next historic link in the vertical integration chain occurred in the aggregates industry. Beginning in the 1980s, several strategic purchasers emerged and either began or greatly enhanced their acquisition activities in the sector. The exact level of consolidation of the aggregates industry is uncertain and varies significantly from market to market. However, one barometer of consolidation is that on a national basis, the top 20 producers control approximately 35 percent of production at present. Furthermore, as shown in Table 2, the top four producers control approximately 25 percent of total production. Based on these statistics, we believe that additional consolidation will occur in the aggregates industry.

Table 2 – TOP FOUR U.S. AGGREGATE PRODUCERS
Vulcan
Martin Marietta
Hanson
Oldcastle

The next logical extensions in the vertical integration chain downstream from aggregate operations are hot mixed asphalt and ready mixed concrete companies. In the early 1990s, several asphalt companies were purchased. Then in the mid- to late-1990s ready mixed operations were sought. The degree of consolidation in asphalt is similar to aggregates in that the top 20 companies presently control approximately 35 percent of the market. In the ready mix industry, the present level of consolidation is measured by the top eight producers controlling approximately 20 percent of the total yards sold in the United States.

Of course, there have been variations of theme in the marketplace in that there still exist “pure” cement producers, “pure” aggregate producers and “pure” ready mixed concrete operations. As a general trend, though, it is difficult to argue that the strategy of vertical integration has not been, and still is, a driving force in ready mixed concrete consolidation.

Another force in the consolidation of the ready mixed industry is the capital markets. Once consolidation begins in a business sector, outside capital is usually drawn toward that sector. This phenomenon was especially pronounced during the late 1990s when not only were international publicly-held companies attracted to invest in ready mix (aka, strategic buyers), but we also witnessed the more direct outside capital investment of organizations who sought to create “roll-ups” (aka, financial buyers).

With the general decline in the capital markets from 2001 to 2003, the appetite for investing in consolidation activities also declined. This decline impacted the financial buyers more than it did the strategic buyers. Access to capital is critical to the financial buyer, whereas, the strategic buyer was still opportunistic to acquisitions that would further extend their vertical integration strategies in existing markets or in new geographies.

In summary, the answer to “why is consolidation occurring in the ready mix industry?” is two-fold. First, a predominant business strategy of vertical integration is being pursued. Second, outside capital has been attracted to the sector. Is there any chance that both of these factors will vanish and consolidation will stop occurring? The answer is maybe. The strategy of vertical integration has been deemed a “failure” in some industry segments and has been undone. This is what drove the significant divestitures, spin-offs and shut downs from major U.S. companies beginning in the mid-1980s. It is conceivable that firms could determine in the future that being a good cement producer or a good aggregates producer does not automatically mean that they will be a good ready mixed concrete producer as well. As for the inflow of capital, that will continue as long as sufficient opportunities for adequate returns are present. But, given the recent drop in ready mixed profit margins, this could “dry up” the capital inflow into the industry.

Even so, if both of these factors were to come about, it does not mean that the industry will “de-consolidate” and go back to what it looked like in the 1970s. Business factors such as environmental laws, employee issues and general business conditions are not the same as they were 30 years ago. Furthermore, some level of consolidation always occurs as profitable companies generally invest in the same industry as long as opportunities are available.

What Happens in a Consolidating Marketplace?

We explored why consolidation is occurring. Let us take a look at the implications of this activity. In a consolidating marketplace, the following activities are typically observed:

• Mergers and acquisitions
• Difficulty generating significant “organic” growth (i.e. – it is easier to buy it than to build it)
• “Rationalization” of market positions of larger players by either service offerings and/or geographies
• Capital investment to drive down costs and increase productivity – strong motivation to become the low-cost producer
• Barriers to entry of new participants rise

Each of these elements is present to some degree in the ready mixed industry. Let us examine each element in more detail.

Mergers and Acquisitions and Difficulty Achieving Organic Growth: The first two characteristics are reviewed together because they are quite naturally tied together. If it is easier for a firm to buy than to build, the natural outcome will be increased acquisition activity. Further pushing this is the availability of motivated sellers. The ownership of privately held companies in the United States is experiencing a dramatic transformation that will continue throughout the next 10 years, primarily due to a demographic “bubble,” which is just now beginning to pass through our society. For the vast majority of privately held companies, they are almost to the end of either
typically see rising barriers to entry in a marketplace. To understand this concept, we can compare the activity to trading baseball cards. For example, if you already have three Mickey Mantle cards but you do not have a Johnny Bench card, you will likely be inclined to trade. The same principle applies to these rationalization activities in the marketplace.

Rationalization: As for the “rationalization” aspect, there has been a significant level of that activity over the past few years. Basically, what is occurring is a digestion and sorting out period during which the strategic buyers have gone through and selected what fits with their overall plan and what does not fit so well. To understand this concept, we can look at the arguments that suggest this is not occurring:

- Low cost of capital has kept barriers to entry low. You can lease a plant, lease trucks, obtain some working capital or a bank line and you are in the ready mixed business
- When margins are higher, barriers are actually lower (meaning you can afford all of the lease payments)
- Smaller producers often have a total labor cost advantage
- Profitability criteria for a new, privately held market entrant is not driven by the public marketplace. They can break even for quite some time and consider themselves successful

However, there are some significant arguments that suggest that — YES — barriers to entry are rising in ready mix:

- Ready mix margins are falling. According to the most recent NRMCA industry survey, typical profitability is $1.58/yard. This is insufficient to sustain independent operations
- Integrated producers are driving down costs, which small, non-integrated producers cannot match
- The cost of capital will rise as the economy improves

Impact of Consolidation on the Marketplace

Consolidation is not happening overnight. Rather it is a dynamic process that is creating different types of market conditions throughout the industry. In this next section, we have identified a few of the common business models that are typically seen during consolidation.

If you break the industry and the marketplace down into two simple spectrums, it is possible to generate several different market models based upon the relative level of market consolidation and the relative level of industry vertical integration. Figure 1 is an illustration of this concept.

Keep in mind, however, that it is possible for a market model to fall literally “anywhere” in this spectrum. No two markets are exactly alike. Furthermore, strategic objectives will vary by company and of course, the marketplace reactions and dynamics will also vary. However, when attempting to categorize a market type, the most common approach to define a market is by identifying the producer or producers with a “dominant” market position (market share). Applying this technique results in the four common market models shown in Figure 2:

The characteristics of each of these market models are as follows:

Single, Non-integrated Competitor

- Common to small suburban or rural markets
- Dominant competitor is the marketmaker and works to maintain volume in a stable market
- Attempts to gain market share may be met with punitive responses
- Second tier of producers often engage in stiff competition with one another
- Often very profitable for all producers because there is no advantage in engaging in stiff price competition
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Multiple, Non-integrated Competitors
- Input costs are generally equal for all dominant producers
- Market share increases are seen (by some) as the primary means to achieve increased profit
- Competition may be viewed as “irrational” and lacking financial discipline, even though they may not view themselves in that way

Multiple, Integrated Producers
- Difficult to compete in this type of market unless it is a high growth market and demand is outstripping supply. However, once supply exceeds demand, it can be extremely difficult to compete
- Prices are generally low, again where supply exceeds demand

Market tends to “ebb and flow” as specific market conditions change

Market share is vehemently protected
Profit may be sacrificed to maintain volume at upstream plants
Can be very profitable for all when cement prices stay low

Single, Integrated Producer
- One competitor with a cost advantage can, but not necessarily will, drive prices down
- Two stereotypes exist: the integrated producer that seeks to maintain customer relations for the upstream products and the integrated producer seeking to control market share for upstream products
- Competitive dynamics vary considerably
- Competitors must understand the integrated producer’s strategic intent in order to position themselves either in alignment and share the market or stay “out of the way” of the major producer

As mentioned previously, these are but four of the many potential variations of markets out there. In general terms, you should be able to identify which of the four major profiles are in the particular marketplace you are in. We believe that this is the first step in the development of an appropriate marketplace strategy. The next step would be to identify the relative strengths and weaknesses of the competitors. In this example, we have examined two basic types, the integrated or the non-integrated producer.

Integrated Producers (either cement, aggregates or both)

Strengths
- Access to the full vertical integration profit stream, which could lead to higher profit than is available to a non-integrated competitor
- Generally “deeper pockets” for capital investment purposes
- Improved economies of scale such as purchasing power, employee benefits costs, etc.
- Control of the supply chain
- Strong desire for growth and profitability

Weaknesses
- Significantly greater capital investment required
- Extremely sensitive to volume declines
- Difficulty diversifying the supply chain

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— e.g., an integrated cement/ready mix producer may have difficulties purchasing cement from another producer
• Pressured from the public marketplace for short-term results

Non-integrated Producers

Strengths
• Lower capital investment required
• Ability to diversify supply chain and use competitive market forces when purchasing
• Focused on single segment
• Greater flexibility to changing market conditions

Weaknesses
• Lower total profit potential
• No direct control of supply chain
• Lower controllable percentage of total costs
The third step in development of a marketplace strategy is to understand what behaviors are favored given the level of concentration in the market.

Highly Concentrated Marketplace

Behaviors Favored
• Unless you are the lead dog, do not make him mad, he has the power to kill you
• Price following
• Customer loyalty/relationships
• Niches away from key producer(s) attention

Behaviors Disfavored
• Price undercutting – invites punitive response
• Direct competition with key producers in their primary segment

Minimally Concentrated Marketplace

Behaviors Favored
• Price for service and quality
• Invite comparison shopping
• Serve across all market sectors

Behaviors Disfavored
• Price collusion
• Concentration on a single user segment

Once you have identified the type of market you are functioning within, your firm’s relative strengths and weaknesses and the types of behaviors that will work in your marketplace, you should be able to develop a sound strategy for competing within the marketplace. This may sound simplistic, however we have often observed that companies fail to understand their playing field prior to formulating their marketplace strategies. In fact, most companies simply accept the marketplace and then wonder why it “treats them so poorly.” Our recommendation is that whether you are a large firm or a small firm, you need to understand your marketplace and use that information to your strategic advantage.

Will Hill and Brian Moore are senior consultants for FMI Corporation in Raleigh, North Carolina. For more information email Hill at whill@fminet.com or Moore at bmoore@fminet.com.

The opinions expressed in this article are those of the authors and do not necessarily reflect the opinions of the National Ready Mixed Concrete Association.
And What Color Would You Like That In…
The Color-Concrete Boom

By Tom Pittman, Aggregate Industries
and Gary Mullings, Senior Director of Operations & Compliance, NRMCA

Red, green, pink or even chartreuse, customizing the color of concrete is now an every day occurrence for the modern ready mixed concrete production facility. And along with the demand for every color under the rainbow has come computerized automated equipment to deliver accurate and dependable coloring agents. Just a few years ago adding color to concrete was a messy by-the-bag type of operation...well, not any more.

The demand for colored concrete is rising at an unprecedented rate. Not too long ago the market for colored concrete for the most part was confined to the southern tier of states. That is no longer the case. The use of colored concrete is up in all regions. According to an article in the March edition of Concrete Producer Magazine, “Industry wide, ready mixed concrete that contained color represented about 2 percent (8-million cubic yards) of 2003 shipments. This year that number should climb to 2.5 percent, jumping to 3.1 percent in 2005 and 4 percent in 2006.” In the ready mixed concrete business, this type of increase is a quantum leap and an excellent business opportunity for the market-savvy producer.

Along with the increase in demand for colored concrete has come an automated dispensing unit, which has solved many of the quality control issues as well as the short-notice, on-demand type product that now has to be issued. More and more pressure is now placed on producers to supply colored concrete with little or no variation from batch to batch. In order to accomplish this, computerized color dispensing units are a necessity. Aggregate Industries Fort Totten Plant Manager Dennis Burger said, “The automatic color system has simplified colored concrete. The system cut labor, reduced the mess, and improved safety and customer satisfaction.”

Admixture companies and colored additive suppliers have recently formed alliances to fulfill ready mixed concrete producers’ need for color additives and systems to dispense them. In 2002, Degussa (then Master Builders) teamed with L. M. Scofield Co. “providing a system that offered a wide range of architectural colors.” Davis Colors and Grace Construction Products have an agreement to supply the ready mixed concrete industry with state-of-the-art color pigments and automated dispensing units. New software products were recent unveiled by Solomon Colors that allows for improved data management and Bayer Chemicals are introducing software compatible with Standley Batch System’s dispensing units that use plant water to mix coloring agents.

The age of colored concrete has arrived. The age of automated delivery system is here. It is now up to the smart ready mixed concrete producer to use the tools of the trade to supply the needs of the industry.
Shrinkage-Reducing Admixtures Control Concrete Curling in Super-Flat Floors

By Jewan Bae, Commercial Development Manager, Grace Construction Products

Curling is a common problem in slab-on-grade construction. It is a major contributor to cracking in concrete slabs, which leads to higher maintenance cost and reduced service life. Curling becomes a bigger problem when installing super-flat floors or even warehouse floors with moderate flatness requirements. For indoor concrete slabs, curling is almost always caused by a differential moisture gradient in the slabs. As the surface of the concrete slab dries faster than its body and bottom, a differential moisture profile is developed along the thickness of the slab. The surface of the slab shrinks more and quicker than its bottom. This differential drying shrinkage gradient is what causes the concrete slab to curl.

The greater the moisture gradient for a certain mixture, the greater the curling. If the curled edges are loaded, such as by forklift trucks, the unsupported curled edges may crack. Then, the crack becomes a maintenance problem. If the curled edges do not crack, they still can be a problem. Vehicles carrying loads may be affected as they encounter the curled edges, or in high-bay warehouses, forklifts may not correctly meet the pallets in upper racks. Figure 1 illustrates the curling process.

Shrinkage-reducing admixtures (SRAs) are specially formulated for use in indoor slab-on-grade concrete construction. These liquid admixtures contain no expansive

Eclipse Floor shrinkage reducing admixture from Grace Construction Products was used in the new concrete floor at the Simpson Gumpertz & Heger Inc. offices in Watertown, MA.
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material, but act chemically to dramatically reduce the primary internal forces that cause drying shrinkage and curling.

Laboratory Tests

Two different tests were developed in order to measure the impact of SRAs on curling:
• The first was performed on cement paste bars to examine the effect of SRAs in a system with very high curling deflections.
• In the second test, concrete beams were used instead, with the intention of obtaining curling data on actual concrete specimens. The results from this test allowed the calculation of the projected curling deflection at the corner of a 5 m x 5 m (16 ft x 16 ft) slab, 160 mm (6 in.) thick.

Cement Paste Test

Two specimen bars of 990 mm x 64 mm x 12 mm (39 in. x 2.5 in. x 0.5 in.) were prepared with cement paste at 0.45 w/c ratio. One bar (the treated bar) was made adding an SRA to the mix at 5 percent of water weight [approximately 7.5 L/m³ (1.5 gal/yd³)] and the other bar (the reference bar) was made without an SRA in the mix. The sides and bottom of both specimens were coated with urethane upon stripping in order to insure that evaporation only occurred from the top face of the bar. Since cement paste has much higher shrinkage than concrete, it also exhibits very severe curling, allowing for direct visual confirmation of the effect of the SRA. As shown in Figure 2, the SRA-treated specimen curled substantially less than the reference bar. The curling deflection was reduced by as much as 80 percent in 60 days by adding the SRA to the cement paste.

In-Situ Shrinkage Measurement

Unrestrained shrinkage beams of 1 m x 0.2 m x 0.1 m (39 in. x 7.9 in. x 3.9 in.) were made with two embedded vibrating-strain gauges in each. The strain gauges were placed in a longitudinal direction: one at 10 mm (0.4 in.) from the surface and another at the center of the cross section (50 mm down from the center). Using the embedded strain gauges, the concrete length changes were continuously measured and recorded every 15 minutes for
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the first 12 days after the pouring date and then on a daily basis until the 30th day.

A commercially produced ready-mixed concrete with 352 kg/m³ cement content (593 lbs/yd³) and 0.51 w/c ratio was used for these beams. The reference beams were made with this concrete and the treated beams were made with the addition of 6.18 L/m³ (1.25 gal/yd³) of an SRA to the concrete mix (see Table 1 for SRA-treated and reference concrete mix designs). After a three-day wet curing with plastic and wet burlap, these beams were air-dried in a closed warehouse with 40-50 percent humidity.

Figure 3 shows the in-situ shrinkage measurement results for the beams (SRA-treated vs. reference mix). The 30-day shrinkage was reduced by more than 50 percent with the addition of an SRA. Also, the SRA significantly reduced the early-age shrinkage, which is very important since it shows the effectiveness of the SRA in preventing or minimizing cracking in the weakest stages of concrete.

The shrinkage difference along the thickness of the concrete beams (difference between midpoint and surface shrinkage in Figure 3) indicates that curling is occurring. When compared to the reference beams, the shrinkage gradient in the SRA-treated beams is reduced by more than 50 percent. These results indicate the impact of the SRA in curling reduction.

**Mid-to-Corner Point Deflection Calculation**

The mid-to-corner point deflection of a curled slab is calculated using the in-situ shrinkage gradient data. In this calculation, a 5 m x 5 m (16 ft x 16 ft) slab with 160 mm (6 in.) thickness is used as an example. From Figure 3, the average shrinkage gradients between the two sets of strain gauges are measured as 100 x 10⁻⁶ and 35 x 10⁻⁶ for the reference beams and the SRA-treated beams respectively.

This exercise (ignoring gravity effects) shows that a slab made with the reference concrete mix would show a 15.5 mm (0.6 in.) curling deflection at the corner of a 5 m x 5 m (16 ft x 16 ft) slab with 160 mm (6 in.) thickness, whereas a slab made with the SRA-treated concrete would show a curling deflection of 5.3 mm (0.2 in.). This is a 65.8 percent reduction in curling deflection by using the SRA. The actual curling deformation would be somewhat less in practice due to elastic and creep deformations from gravity loading on a longer slab. This exercise demonstrates that the differential shrinkage measurements are in line with field experience for curling and reinforces the value provided by the SRA in reducing curling.

**High-Value Floors**

SRAs reduce drying shrinkage and curling of concrete slabs. Therefore, less cracking is expected in SRA-treated concrete slabs. Along with careful design and practice, the addition of an SRA to the mix can even enable the extension of joint spacing for any given concrete slab. Overall, an SRA can help achieve a higher-value flooring system with:

- Less cracking due to reduced drying shrinkage and curling.
- Flatter surface due to less curling.
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Meeting the demands of the ready-mix industry.
In recent years, super-flat floors have been in vogue, not only in utilitarian structures such as wholesale-club warehouses but also in architectural designs for avant-garde buildings such as art museums. These trends in modern construction have taxed specifiers and contractors to find new solutions and quantify the benefits. In fact, such applications have raised the standard for concrete construction.

SRAs Reduce Costs, Increase Efficiency

Although the rate of drying shrinkage, which produces curling in flatwork, depends on a complex set of factors, controlling shrinkage using an SRA along with a careful concrete mix design has resulted in some remarkable applications.

In recent years, super-flat floors have been in vogue, not only in utilitarian structures such as wholesale-club warehouses but also in architectural designs for avant-garde buildings such as art museums. These trends in modern construction have taxed specifiers and contractors to find new solutions and quantify the benefits. In fact, such applications have raised the standard for concrete construction.

Contemporary wholesale warehouses demand that their floors have fewer joints and less curling to minimize costs and improve the performance and safety of forklifts and other support vehicles. For example, in high-bay facilities, forklifts can be adversely affected by concrete floor curling, preventing the operators from placing loads accurately on upper tiers. In addition to the functionality of such floors, they must also be free of cracks and appealing to shoppers.

In Port Coquitlam, British Columbia, Canada, a local contractor was called upon to install a super-flat floor for a major wholesale club. The architects had developed a detailed specification that required concrete shrinkage of no more than 0.032 percent after 28 days. That amounts to less than 10 mm (three-eighths of an inch) for every 30 meters (100 feet). A mix using an SRA was tested in a laboratory before pouring a slab measuring 13,500 square meters (145,000 square feet). Not only did the floor meet the stringent specifications set by the client but it also has lived up to its promise and today shows no sign of cracking due to drying shrinkage and curling.

When drying shrinkage is reduced in a concrete slab, extended joint spacing can be achieved or joint openings can be minimized at given joint spacing. Fewer joints or smaller joint openings enable work facilities to increase operating efficiencies by lowering cleaning needs. Aside from occasionally wearing out, joints in concrete floors tend to collect dirt and debris and can be difficult to clean.

For these reasons, a fish-processing plant in Woodland, Washington, opted to construct a new floor with a concrete mix using an SRA. The slab on grade was specified to minimize curling and cracking, as well as joints. Limiting the number of joints in the slab reduced construction costs because crews did not have to install so many joints. Operating costs associated with maintenance were also decreased because the work surface was easier to clean. Fewer joints mean more effective cleaning in a food-processing facility where cleanliness is critically important.

The concrete mix, which required a three-day wet cure, included an SRA to limit drying shrinkage and decrease curling and cracking. Because the contractor used a mix that reduced drying shrinkage, he was able to place control joints 18 meters (60 feet) apart. To date, the durable slab has not...
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EXCEED EVEN THE MOST
OPTIMISTIC PROJECTIONS.

AND EMPLOYEES WOULD NEVER
NEED TO REQUEST TIME OFF TO
SERVE WITH THE NATIONAL GUARD
AND RESERVE.

BUT, THEN AGAIN, IF THE WORLD
WERE INDEED A PERFECT PLACE...
WE WOULDN’T NEED THE
NATIONAL GUARD AND RESERVE.

FOR THE TIME BEING, HOWEVER,
WE DO. THE NATIONAL GUARD AND
RESERVE MAKES UP MORE THAN
40% OF OUR NATION’S DEFENSE.
THAT’S IMPORTANT. TO ALL OF US.
BE A HERO. GIVE YOUR EMPLOYEES
THE FREEDOM TO PROTECT OURS.

Table 1
Concrete Mixture Proportions

<table>
<thead>
<tr>
<th>Materials</th>
<th>Reference Mix</th>
<th>Eclipse Floor Treated Mix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement (ASTM C 150 Type 1)</td>
<td>352 kg/m³ (1593 lbs/ft³)</td>
<td>352 kg/m³ (1593 lbs/ft³)</td>
</tr>
<tr>
<td>10 mm Aggregate</td>
<td>326 kg/m³ (550 lbs/ft³)</td>
<td>328 kg/m³ (553 lbs/ft³)</td>
</tr>
<tr>
<td>20 mm Aggregate</td>
<td>747 kg/m³ (1,259 lbs/ft³)</td>
<td>739 kg/m³ (1,246 lbs/ft³)</td>
</tr>
<tr>
<td>Fine Aggregate</td>
<td>751 kg/m³ (1,266 lbs/ft³)</td>
<td>743 kg/m³ (1,253 lbs/ft³)</td>
</tr>
<tr>
<td>Water</td>
<td>180 kg/m³ (303 lbs/ft³)</td>
<td>180 kg/m³ (303 lbs/ft³)</td>
</tr>
<tr>
<td>Water Reducer*</td>
<td>196 mL/100 kg (3 fl oz/cwt)</td>
<td>196 mL/100 kg (3 fl oz/cwt)</td>
</tr>
<tr>
<td>Superplasticizer**</td>
<td>456 mL/100 kg (7 fl oz/cwt)</td>
<td>326 mL/100 kg (5 fl oz/cwt)</td>
</tr>
<tr>
<td>Eclipse Floor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrinkage Reducing Admixture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W/C Ratio</td>
<td>0.51</td>
<td>0.51</td>
</tr>
</tbody>
</table>

Eclipse Floor Reference Treated

Reference Mix

The following is known for the corner of a 5 m x 5 m slab from the reference beam test

\[ \Delta = \text{Shrinkage Gradient (Surface-Moisture)} = 100 x 10^2 \]

The solution for the equation is

\[ x = \frac{3.536 \times 0.51318}{0.85} = 16.2 \text{ mm} \]

Using this data and assuming a linear relationship between drying shrinkage gradient and slab thickness, the curling deflection \( \Delta \) at the corner of a 5 m x 5 m x 150 mm thick slab can be found

\[ \Delta = \frac{160}{403.2345 \times 10^2} \times 16.2 \text{ mm} \]

Eclipse Floor treated Mix

The following is known for the corner of a 5 m x 5 m slab from the Eclipse Floor treated beam test

\[ \Delta = \text{Shrinkage Gradient (Surface-Moisture)} = 30 x 10^2 \]

The solution for the equation is

\[ x = \frac{3.536 \times 0.51318}{0.85} = 16.2 \text{ mm} \]

Using this data and assuming a linear relationship between drying shrinkage gradient and slab thickness, the curling deflection \( \Delta \) at the corner of a 5 m x 5 m x 150 mm thick slab can be found

\[ \Delta = \frac{160}{403.2345 \times 30} \times 16.2 \text{ mm} \]
Although SRAs are effective in preventing curling of concrete flatwork and super-flat floors, it is important to point out that they are not a substitute for best practices in installing high-quality concrete. They also do so consistently and predictably. Using SRAs in concrete will continue to help specifiers, contractors, and engineers create longer lasting, better functioning, and more beautiful concrete structures.

Jewan Bae is a commercial development manager for Grace Construction Products in Cambridge, MA. Bae holds an MS in Material Science and Engineering from Washington State University and a MBA from the University of Notre Dame. He is currently a member of ACI committees 302, Construction of Concrete Floors, 360, Design of Slabs on Ground, and 544, Fiber Reinforced Concrete. Visit www.graceconstruction.com for more information.

The opinions expressed in this article are those of the author and do not necessarily reflect the opinions of the National Ready Mixed Concrete Association.
Sales Manager as Coach

By Eileen Dickson, Director of Education, NRMCA

Over 2200 ready mixed concrete sales reps have attended NRMCA’s CCSP (Certified Concrete Sales Professional) course. To help sales managers hold their reps accountable for the knowledge they bring back from CCSP classes, NRMCA will launch an annual October “CCSP short course” for sales managers, which will help them bone up on the content that is recognized as the industry’s standard sales skills, share common challenges with other sales manager and learn industry-specific coaching skills. Additionally, NRMCA’s October 2004 Business and Administration Conference will extend its reach to include sales managers. What is clear is that managing a field sales staff is more than dealing with personalities, crunching numbers and doling out compensation. It's also about motivation and leadership.
In a very aggressive market, Majestic Ready Mixed Concrete’s profit per cubic yard has slowly declined over the past three years. About 10 months ago, after seven years on staff, Rafael Garcia was promoted to sales manager, replacing the man who retired after 18 years in the position. Shortly thereafter, Raf spent a great deal of time analyzing Majestic’s sales results. Since 2001, selling expenses rose from $1.36 to $1.58 per cubic yard. Further analysis pointed to the fact that there were some staff performance problems that would have to be resolved if the company’s overall performance was to improve. One of these problems was Andy Gray, a gregarious glad hander who rose from driver to dispatcher to sales rep in his 27 years at Majestic. His sales were slightly down this year and were flat over the past four years, but at one time, Andy was one of Majestic’s top producers. Over the years, Andy culled the best accounts and it now appeared that he was riding on his relationship with them. After digging deeper, Raf believed that even these sales were slipping. Raf guessed that Andy’s customers would continue to throw business to Andy out of a sense of obligation and friendship, but some business was clearly going to other ready mixed producers.

Raf discussed the lack of sales growth with Andy, who said that he had paid his dues and earned the right to call on the premier customers. He was pretty content with his compensation and he just didn’t need to hustle at full throttle anymore. Andy also correctly pointed out that his sales were not the lowest at Majestic. Raf was convinced that there was not a lot he was going to be able to do to motivate Andy. He also felt that there were other sales reps who were better equipped to call on key accounts since they had earned their CCSP certification and relied on more than friendship to close a sale. With a more up-to-date understanding of concrete technology, the contractor’s business model, the financials of a ready mixed company and value selling, other reps should be able to get a lot more growth out of key accounts than was Andy, who preferred kibitzing at pours and buying lunch more than hustling new business.

At 57, Andy was eligible for early retirement, but Raf knew that Andy was not interested. Raf knew his decision was complicated by two other facts: Andy was a golfing buddy of Majestic’s general manager and Andy had recommended Raf for an open sales rep job when Raf was desperately looking for employment. What was Raf going to do?

As Majestic’s new sales manager, Raf needs to understand that leadership includes supervising a multitude of daily activities that ensure his sales force operates effectively. Raf must never lose sight of his ultimate goal, which is to increase the cubic yardage annually sold at a higher margin of profit. Secondary purposes are served in reaching that ultimate goal because a lot of supervision revolves around training and developing his staff’s potential. The other side of Raf’s supervision entails enforcing company policies and monitoring his sales force’s activities to make certain they comply with management’s wishes.

Most ready mixed concrete producers’ sales management operations rely heavily on auto-

Leadership is the ability to get others to do what they don’t want to do — and like it.
— Harry Truman

Riding with a Sales Rep for Observation and Evaluation

One of the primary reasons a sales manager rides with the company’s reps is to directly observe their performance in order to evaluate them. The evaluation is then followed by the appropriate rewards, suggestions for improvement and training. Listed below are several things a supervisor should look for when riding with their sales people:

- Does the sales rep know and understand his/her customers, their businesses and their needs?
- Does the sales rep take the lead in directing the conversation and moving from one agenda item to another?
- Does the sales rep respect customers’ time and treat them courteously?
- Does the sales rep treat customers in a consistent and equitable manner?
- Is the sales rep a good and fair negotiator?
- Does the sales rep know the competition and what is going on in the ready mixed concrete industry?
- Does the sales rep display pride in performing his/her job?
matic supervisory techniques such as quotas, expenses account policies, specific account delineation and reporting systems. The amount of personal supervision imposed on a sales force is largely a function of the caliber of the sales reps. Typically, highly talented sales people require very little supervision, whereas low-level and problematic sales staff require far more.

A problem frequently encountered by all sales managers is poor performance. And in this case, Raf needs to deal with Andy to avoid potentially serious consequences. Raf’s challenge is not to fire Andy but rather motivate him to become a more productive employee. Because of a possible discrimination suit, it is prudent for Raf to make sure that he has done everything within reason to help Andy. Often reps like Andy have already received extensive training, such as CCSP certification. If not, then Andy needs to update his skill set. Ultimately, that investment is much less expensive than replacing Andy. Raf’s challenge will be to get Andy to leave his comfort zone, change his selling techniques to the industry’s newer accepted selling practices and then apply those new skills with customers. The days of simply relying on a relationship without providing substance and value must end.

Although many managers find it difficult to criticize their subordinates, it is often possible to correct a problem by giving immediate feedback about the problem behavior. This constructive feedback should take place as soon as the sales manager notices the performance problem. Raf needs to be very specific about what the problem is with Andy. He should use the following steps:

1. State the problem to Andy.
2. Get Andy to agree on the problem.
3. Listen to Andy’s assessment of the problem.
4. Consider any extenuating circumstances.
5. Pre-design an action plan for Andy’s improvement.
6. Get Andy’s agreement on the action plan. One way to accomplish this is for Raf and Andy to design the final plan of action together.

If Andy’s performance does not improve as a result of immediate feedback, the problem should be reviewed in a formal performance appraisal and a plan for improvement should be agreed upon by the sales manager and the sales rep. In his sales manager capacity, Raf must make it very clear that poor performance is not acceptable. Each step should be documented with written memos detailing what took place. If the problem continues, a counseling session is recommended to review all the previous attempts to encourage improvement. Andy should be given a specific time period to show improvement. Then, if necessary, and with all of the appropriate documentation, Raf must terminate or demote Andy.

As sales manager, Raf is in a leadership role. He must motivate all of his sales reps, including Andy. They must be coached so they can give their best performance every day. It’s not an easy task. Work can be pressure-packed and distractions abound. But a ready mixed producer bereft of sales management leadership will continue to see its profitability dwindle away.
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Ultra-Thin Whitetopping revives faltering pavements

Today, the main concern of pavement engineers is not creating new roads, but repairing existing ones. The Road Information Program, a national non-profit transportation group, reported in 2003 that in many major urban areas, the poor state of roads is costing drivers an average of almost $400 in extra operating costs.* Many of these pavements were built in the early 20th century, and have long since passed their design life. Our streets have never been in worse shape, and most cities are forced to shift their emphasis from new pavement construction to maintenance of existing pavements.

Public funds are limited, schedules lean toward the fast track, and with more people driving today than ever before, road closures cause monumental headaches. It’s no wonder that decision-makers are looking for better ways to fix their roads, ways that won’t stretch their pocketbooks or their patience.

Some cities try to use asphalt overlays to repair existing streets, only to find out the hard way that their “solution” must be repaired or replaced again within two to seven years. There are concrete alternatives that provide sustainable, smooth roadways.

In many situations, ultra-thin whitetopping (UTW) can provide two to three times the service life of conventional asphalt, at a fraction of the cost of reconstruction.

Get in, get out, and stay out with concrete overlays

Using concrete overlays to repair distressed pavements means your crews can get in, get the work done and get out fast—reducing costs and driver frustrations. As part of any balanced pavement management program, they offer unbeatable benefits:

- **Strength:** Concrete hardens over time. After its first month in place, concrete slowly increases in strength by about 20% over its lifetime.
- **Durability:** With an average lifespan of 30 years, concrete can outlast the competition. And concrete pavements frequently surpass their design lives.
- **Ease of construction:** Concrete pavements can be constructed and open to traffic in a matter of hours if necessary.
- **Low life cycle cost:** Longer life expectancies and minimal maintenance costs give concrete a long-lasting value.
- **Safety:** Concrete pavements are safer, boasting significant light reflectivity, reduced wet spray and excellent traction and skid resistance.
- **Sustainability:** Recycled content in concrete—including recycled, crushed concrete and industrial byproducts like fly ash and slag—helps reduce waste.
- **Customized appearance:** Modern design techniques offer a variety of aesthetic choices for each application.
Ultra-thin whitetopping revives old asphalt

For repairing old asphalt pavements, ultra-thin whitetopping (UTW) provides a lasting solution. UTW is used in situations where the existing asphalt pavement is full-depth (asphalt surface on asphalt base), and is ideal for normal traffic loads on residential streets and low-volume roads. It also can be used in asphalt intersections where pavement shoving and rutting are problematic.

Placement of UTW begins with inspection of existing pavement. Pre-placement repairs are frequently minor or unnecessary because concrete can bridge most deterioration. The concrete is placed directly on the prepared asphalt in a layer two to four inches thick. Complete or partial bonding between the concrete overlay and existing asphalt occurs, creating a composite material in which both concrete and asphalt share the load.

After the concrete is cured, joints are created with very short spacing. Short joint spacing allows the slabs to deflect instead of bend, reducing load stresses in the slabs that are acceptable even at ultra-thin thicknesses.

UTW overlays offer fast repair times, often allowing crews to maintain traffic on existing surfaces during construction. Unlike asphalt, they do not suffer from seasonal weakening or reflective cracking. UTW pavements offer improved structural capacity, maintain a high level of serviceability and react structurally as if on a strong base course. As with unbonded concrete overlays, they also have a reduced potential for faulting, pumping or loss of support.

Resource List

- Whitetopping–State of the Practice, ACRA, EB210p
- Construction Specification guideline for Ultra-Thin Whitetopping, ACRA, 1999, IS120p
- Ultra-Thin Whitetopping, ACRA, IS100p
- Special Report, Concrete Pavement Technology & Research, ACRA, 2003, SR002p

*For more information on The Road Information Program, visit www.tripnet.org.
Question: We are getting ready to put up a new concrete batch plant on our existing site. None of my current employees are physically disabled and the batch plant is not a public area. Do I need to do anything to comply with the Americans with Disabilities Act (ADA)?

Answer: Since the plant is not in a public area, there are only a few regulations you need to comply with as far as the Americans with Disabilities Act is concerned. The approach to the building, entrance and exit of the building the batch plant is contained in must be accessible to the disabled. If there are stairs to the entrance, a ramp must be provided. Doors should be wide enough to accommodate wheel chairs. And if the building is to contain bathrooms, they must be accessible as well – including wide doors and a stall that can fit a wheel chair.

Please note: The column contained here should in no way be considered a substitute for competent legal counsel. It is only meant to be a guide to help employers know when it is necessary to consult an attorney on issues pertaining to labor-management relations and other workplace issues.
Attending CONEXPO-CON/AGG is a wonderful opportunity to network with concrete industry professionals from around the world. It's an internationally recognized source for the latest equipment, innovations and developments that can improve your bottom line. I also make time to attend the show's SEMINARS to learn about improved marketing and sales techniques specifically for the concrete and aggregates business. A ready mixed concrete producer can't afford to miss this show. Attendance should be mandatory in order to keep up with the competition. I've only missed one show in 20 years and still regret it!

---Hardy B. Johnson, President
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Best Sellers from the NRMCA Bookstore

1. 2PCIP100 – Concrete In Practice Package:
Concrete in Practice Sheets are short one-page discussions on various concrete topics and are written in a “What? Why? and How?” scheme and are intended to provide information in a non-technical format. The CIP topics are researched and written by members of NRMCA’s Research, Engineering and Standards Committee. These are a great resource to give to your contractors and customers. English CIP Full Set 2PCIP100 - contains 20 sets of each CIP topics 1-38. Spanish CIP Full Set 2PCIP100es - contains 20 sets of each CIP topics 1-36. ($180 members, $720 non-members); English Single Set 2PCIPS & Spanish Single Set 2PCIPSes. ($20 members, $80 non-members)

2. 2P188 – Truck Mixer Driver’s Manual:
This manual educates truck mixer drivers about concrete and customer relations. Completely updated for 2004, it also highlights driver duties, safety precautions, equipment inspection and maintenance procedures and what the driver should do in case of an accident. This 64-page manual is easy to understand and contains common sense information every driver should know. ($10 members, $40 non-members); (20 or more copies $8 members, $32 non-members)

3. 2P170- Compilation of ASTM Standards Relating to Concrete:
Includes 12 ASTM practices and test methods related to testing fresh and hardened concrete, including those required for ACI grade 1 field-testing and strength testing technician certification. It also includes the specification for ready mixed concrete, ASTM C 94. This compilation was reprinted by ASTM in January 2004. ($18 members, $30 non-members)

4. 2PCG49 – Compliance Guide for U.S. D.O.T.-FMCSA Final Rule 49 CFR, Part 380:
NRMCA’s Final Rule 49 CFR, Part 380 Compliance Guide provides information and resources for meeting the requirements of the Department of Transportation, Federal Motor Carrier Safety Administration’s Final Rule 49 CFR, Part 380, regarding mandatory minimum training requirements for entry-level commercial motor vehicle operators. The compliance guide includes hard copy and CD PowerPoint presentations as well as a copy of the FMCSA Final Rule, a sample certificate/diploma, a driver qualification checklist, a recruiting checklist and an FMCSA field office directory. ($95 members, $195 non-member)

5. 2PTRI – Toxics Release Inventory Guidance for the Ready Mixed Concrete Industry:
NRMCA has published this document specifically for the ready mixed concrete industry to help companies know their responsibilities for reporting under toxic release inventory guidelines. The document includes a flow chart that can be followed to determine reporting status, as well as specific thresholds that trigger reporting of chemical compounds likely to be used in ready mixed operations. ($50 members, $350 non-members)

6. 2PCP37 – Self Consolidating Concrete:
Highly flowable self consolidating concrete (SCC) has many advantages. This Concrete in Practice Sheet is a short one-page discussion on SCC and offers valuable information on its characteristics, why it is used, how to test it and how to order or specify it. Ideal for customers and producers. Sold in packages of 50. ($15 members, $60 non-members)

7. 2PRV031 – Keeping the Shiny Side Up Pt. 1 (On-Road) & Pt. 2 (Off-Road):
In our business, the term “rollover” elicits images of damage, bodily injury and major costs. Part 1 takes a critical look at the contributing factors leading to a ready mixed truck rolling over while maneuvering on the road, and then provides specific steps a concrete delivery professional should practice every day to avoid a rollover and minimize personal injuries if a rollover occurs. Part 2 focuses on preventing a rollover in off-road and job-site situations. The lesson provides step-by-step procedures relevant to operating on side hills and open excavations as well as reviewing the steps that need to be taken to prevent or minimize injuries in the event of a rollover. ($99 members, $129 non-members)

8. 2PCIP38 – Pervious Concrete:
High porosity pervious concrete is an important product for sustainable construction. This one-page CIP discussion provides useful information on why to use it, as well as how to create, test and inspect it. Sold in packages of 50. ($15 members, $60 non-members)

9. 2P159 – Concrete Plant Operator’s Manual:
Jointly prepared by the Concrete Plant Manufacturers Bureau and NRMCA, this manual is a comprehensive guide for the batch plant operator. It includes valuable information on materials, batch tolerance and aggregate moisture, calculations, plant maintenance, safety and more. ($20 members, $80 non-members)

10. 2P187 – Compilation of ASTM Standards Relating to Concrete:
Contains 43 ASTM specifications, practices and test methods relating to cement, fly ash, slag, silica fume, admixtures, aggregates and concrete. Included in the ASTM Manual of Aggregates and Concrete Testing. Reprinted by NRMCA in February 2003, it contains the most recent versions of the ASTM standards at that date. ($35 members, $140 non-members)
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In Memoriam

The concrete world was dealt a devastating blow by the loss of one of its industry leaders. Tommy Stephens, president and CEO of Stephens Mfg, passed away March 21, 2004 in Ft. Lauderdale, FL. The loss of Tommy will reverberate throughout the concrete, aggregate, quarry and many other associate industries, and most importantly, through all who knew and loved him.

Tommy's father, Bill Stephens, started Stephens Mfg. in 1957. After college, Tommy took over the company while maintaining the same family principles — customer service and a “treat others like you want to be treated” attitude. Tommy's brother, Max, will continue to operate Stephens Mfg. with the same winning values. When you consider the newest manager or supervisor has 13 years with Stephens Mfg., that gives an indication that the place is indeed a family company.

Tommy lived life to the fullest. He served on the Monroe County Hospital board, was vice-chairman of CPMB and served on numerous committees for NRMCA and CONEXPO-CON/AGG. He was instrumental in implementing state-of-the-art technology in concrete plants, dust control systems and concrete recycling systems. His hobbies were golfing, fishing and traveling with his dealers to meet new customers. Tommy truly was a “visionary” of the big picture.

Tommy's personality always left people smiling. He knew all facets of the concrete industry and all jokes ever told about concrete. He was a man to be admired for his simple down-to-earth people skills and his assertive board meeting skills. Tommy would go out of his way to ensure his newest welder felt at home. He was also a man dedicated to his friends, family and employees. He would always listen to new ideas from anyone.

Tommy had a vision to make Stephens Mfg. a world-class business. This vision will be realized. We at Stephens Mfg. are more than ever determined to make the best product available. We all feel Tommy is still watching us.

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