SAFER DRIVING MEANS BETTER BUSINESS

The Telvisant® DriveSafe™ Driver Safety Scorecard System was developed by Trimble in partnership with McNeilus Companies and is supported by The National Ready Mixed Concrete Association.

- Helps prevent accidents and related costs
  DriveSafe identifies the unsafe driving behaviors that can lead to rollovers and other accidents. Finding and correcting the bad habits that cause accidents means you minimize injuries, liabilities, insurance costs, and lost production. Everybody wins. Can you afford not to be safe?

- Scores each driver's driving habits
  Compare each truck's score with the rest of your fleet, or national averages. Measure your drivers over time and under certain conditions. DriveSafe is an excellent tool for driver training and counseling—and for rewarding excellent driving. Build your company’s proactive driver safety program around DriveSafe.

- Standalone or complete Autostatusing
  Use DriveSafe as a standalone system or upgrade it to the Telvisant Fleet Management System for a complete Autostatusing and safety solution. Safety and Profitability in one package.

DriveSafe makes your business safer—and better.

Trimble Mobile Solutions, Inc.
14301 G. Sullyfield Circle
Chantilly, VA 20151
703.502.8125
MINIMUM WEIGHT. MAXIMUM PAYLOAD.
contents

features

8 Highlights of the 2004 NRMCA Industry Data Survey
12 Concrete Plays Key Role in Revitalizing Historic City Center
17 Educate Architects and Engineers – Don’t Sell to Them
23 Changes to ASTM C 150 Ensure Concrete Performance and Offer Environmental Benefits
30 Exploring and Implementing Concrete Mix Optimization for Increased Yield and Profitability
37 The Eight Things You Need to Know to Lead in Your Marketplace
45 Concrete Ride
57 Effects of Non-Standard Curing on Strength of Concrete

departments

7 Capitol Comment: Election Day Shows Democracy at its Finest
14 Truck Tracs: Getting Started
19 The Environmental Scene: Wildlife Habitat Programs Thrive at Ready Mixed Facilities
27 Tech Talk: New Standards for Mixing Water
35 Safety First: Ready Mix Truck Drum Chip Out
43 Equipment Talk: Cell Phone Technology and Ready Mixed Concrete
51 Education Matters: Running the Business
61 Workforce Issues Q & A
69 Index to Advertisers
STAY ON TRACK

LOWEST CENTER of GRAVITY
for STABILITY You Can FEEL!

See It In Action @ www.schwing.com

30th
2004

ANNIVERSARY

New Brochure!

SCHWING Stetter

5900 Centerville Road - ST. Paul, MN 55127 - TEL: 651-429-0999 - FAX: 651-429-3464 - 1-888-SCHWING
Concrete professionals have relied on Master Builders since 1909 for solutions to their concrete problems. Perhaps even your father or grandfather used dependable Master Builders products.

Products you’ve trusted:
- Pozzolith®
- Rheobuild®
- Pozzutec®
- PolyHeed® — the best-selling admixture in North America

Leadership in innovation:
- Glenium® — a new family of superplasticizers
- Rheodynamic® — Self-Consolidating Concrete
- 4x4" Concrete — 400 psi flexural in 4 hours for fast, full-depth pavement repairs.

Just recently, Master Builders changed its company name to Degussa Admixtures, Inc., part of the Degussa family, the global leader in specialty chemicals. Together, some of the finest technical minds in the world are working to provide you with solutions to tomorrow’s construction challenges.

For nearly 100 years, the name Master Builders has meant products, service, and support you can count on, and we don’t plan to change that. Because Degussa Admixtures will continue to sell Master Builders brand products, chances are, your grandchildren will depend on Master Builders, too.
After living through one of the closest presidential races in history in 2000, the enormous political hype surrounding this year’s election couldn’t have possibly lived up to it – but did! The tremendous voter turnout – particularly on the part of the business community – certainly caught several election officials off-guard with extremely long lines at many polling places around the country. However, the anticipated voting problems, watched closely in the highly contested states of Ohio, Pennsylvania and Florida, never materialized and in the end the combination of strong voter participation and lessons learned from past years produced an Election Day showing democracy at its finest. Although a few races remained tight or too close to call through the early morning hours of November 3rd, the overall number of closely contested races dropped significantly from 2000 and 2002.

While control of the Senate was in play, there was never any real doubt that the Republicans would maintain control of the House of Representatives. The real question that was floated prior to November 2nd was, “How many seats will the Republicans pick up in the House?” and that total will not be known until two run-off elections take place in Louisiana on December 4th. The big news on the Senate side was a net gain of four seats for the Republicans along with an unprecedented defeat of a sitting Minority Leader – former Rep. John Thune (R-SD) defeated Sen. Tom Daschle (D-SD) in a race that broke campaign spending records, averaging about $80 spent per voter. Some results of note include:

No Surprises

It was no surprise that Republicans maintained control of the House of Representatives as the redistricting in Texas all but ensured Republican victories throughout the Lone Star state. Well before Election Day, the outcomes of two open Senate seats – a Republican seat in Illinois and a Democratic seat in Georgia – were widely accepted as each swapping parties. Barack Obama (D-IL) won handily in the former while Rep. Johnny Isakson (R-GA) cruised to victory in the latter race.

Unfortunate Goodbyes

For the most part, Election Day 2004 saw pro-business gains but the day was not without its losses. Freshman Representative Max Burns (R-12-GA) lost his re-election bid in a very tight race. House veteran and strong industry supporter Rep. Phil Crane (R-8-IL) was defeated in another close race by a challenger who has repeatedly looked to unseat him. Although the 109th Congress looks to be more business-friendly, both absences will be felt.

Who’d Have Thought?

Senator Jim Bunning (R-KY) was initially considered to be safe in his re-election bid but stumbled somewhat down the home stretch, calling his chances of Election Night victory into question. Although he ultimately pulled out the win, the race came down to the wire. Also surprising to some was Rep. David Vitter’s (R-LA) win in the Louisiana open-seat Senate race where he won with over 50 percent of the vote, eliminating the necessity for a run-off for that seat.

For more information, contact Jennifer LeFevre at jlefevre@nrmca.org.

<table>
<thead>
<tr>
<th>Control of Congress – 108th vs. 109th</th>
</tr>
</thead>
<tbody>
<tr>
<td>House of Representatives 108th 109th*</td>
</tr>
<tr>
<td>Republicans 229 231</td>
</tr>
<tr>
<td>Democrats+ 206 202</td>
</tr>
<tr>
<td>Senate 108th 109th</td>
</tr>
<tr>
<td>Republicans 51 55</td>
</tr>
<tr>
<td>Democrats+ 49 45</td>
</tr>
</tbody>
</table>

* There are two House races in Louisiana that will not be decided until a run-off election takes place on December 4th.
+ There is an Independent member in each chamber who is included in the Democratic column.
Highlights of the 2004 NRMCA Industry Data Survey: Analysis of 2003 Data

By Michael Forster,
Vice President of Finance & Administration, NRMCA

Background

The Business Administration Committee of the National Ready Mixed Concrete Association annually administers the Industry Data Survey to measure performance as a health check for the ready mixed concrete industry. The survey is completely confidential since it is administered by an independent certified public accounting firm and no one other than the company submitting the survey and the accountant is allowed to view individual data. The compiled report provides significant amounts of sales and cost data, both regional and national, that producers may use to measure their performance against averages of other industry participants.

Trends

The overall survey results profiled averages for 155 companies that responded, which is down slightly from the previous year’s participation level of 166 companies. The average sales volume for the 155 companies responding with data for 2003 doubled versus the average sales volume for the 166 companies that provided data for 2002. The average sales reported for 2002 was $22,062,804 versus $44,215,463 for 2003, indicating the impact of larger companies in the survey results.

The average net sales price per cubic yard of concrete for a “Typical NRMCA Member” grew from $67.21/cy in 2002 to $68.04/cy in 2003, a net gain of $0.83/cy. For 2003, “Industry Leaders” that fell into the top 25 percent of overall performance had an average net sales price of $68.95/cy in 2002, which grew to $72.81/cy in 2003, a net gain of $3.86 per cubic yard.

Since 1999 when the pre-tax profit peaked at $5.27/cy, the industry average for the Typical NRMCA Member began steadily declining through 2002, finishing at $1.58/cy. The pre-tax profit decline was driven by rising costs in all categories, most notably by material costs that increased more rapidly than the net sales price during the period. However, the 2003 data show that the downward trend in the pre-tax profit seems to have ended with the result being $2.30/cy; yet further analysis of the numbers is necessary to understand the nature of the gain made from 2002 to 2003 because it is slightly deceiving. Additionally, unlike the
Typical NRMCA Member, the pre-tax profit for Industry Leaders fell from $4.63/cy in 2002 to $4.44/cy in 2003 (down $0.19/cy).

For the Typical NRMCA Member, total variable costs per cubic yard increased $0.94 from 2002 to 2003, growing from $52.99/cy to $53.93/cy respectively. When applied to the 2002 and 2003 net sales prices highlighted earlier, the contribution margin actually decreased $0.11/cy (from $14.22/cy in 2002 to $14.11/cy in 2003). The pre-tax profit story really begins to clear up when you take a look at the fixed costs. Total fixed costs per cubic yard actually decreased from 2002 to 2003 by $0.61 (dropping from $12.79/cy to $12.18/cy). This decline was led by a $0.24/cy reduction in Truck & Equipment Leases, a $0.14/cy reduction in Executive Compensation and a $0.14/cy reduction in Office Salaries. Small reductions in Interest Expense, Fringe Benefits and Other Expenses also contributed to the decline, slightly offset by a $0.05/cy increase in Truck Depreciation.

Yet probably the most telling statistic contributing to the rebound in the pre-tax profit is the $0.33/cy gain in Other Income, growing from $0.15/cy in 2002 to $0.48/cy.
in 2003. This was directly attributable to companies selling assets and realizing gains on those sales.

Summary

While the pre-tax profit rebounded from $1.58 to $2.30 in 2003, the Typical NRMCA Member mostly benefited from reducing fixed costs and realizing gains on the sale of assets. Total variable costs per cubic yard (including materials, plant and delivery) continued to increase at a rate greater than the rate of increase in the net sales price per cubic yard (sales price/cy grew 1.2 percent while total variable costs/cy grew 1.8 percent). The year-to-year increase in the absolute dollar differential for total variable costs per cubic yard also outpaced the absolute dollar differential for the net sales price per cubic yard: from 2002 to 2003, the net sales price grew $0.83/cy (mentioned earlier) while the total variable costs grew $0.94/cy (from $52.99/cy to $53.93/cy).

The Industry Data Survey is a valuable performance measurement tool for benchmarking the ready mixed concrete industry. Although participation levels and company mix vary slightly from year to year, both nationally and regionally, the survey results are deemed statistically valid based on the sample size and grow more statistically valid as increased numbers of producers participate. NRMCA continues stressing the confidentiality of individual data submitted by participants and encouraging the increased participation that is vital to gain the best measure of industry performance. Participants in the survey receive a full detailed copy of the results alongside an individual company profile that makes it easy to evaluate performance against compiled industry averages while also having the distinction of being able to highlight operational areas that might require attention to increase efficiency.

Charts and graphs highlighting the trends and summaries of industry performance are shown above and on page 9.

For more information, contact Michael Forster at mforster@nrmca.org.
Before I was a tilter, 
Now, I’m a RollMaster

The New Mixer 
For The Ready-Mix Industry

- Produce more than 350 yd\(^3\)/h.
- Operation cost less than 5¢ / yd\(^3\)
- Use 37% less power to operate
- Variable speed drive eliminates power peaks
- Mix RCC to 12” slump without spillage
- Use 50% less space than tilter mixer
- All enclosed for 100% dust control

RollMaster 
by BMH Systems

See us at 
WOC 
Booth #1147

See us at 
ConAGG 
Booth #9704

BMH SYSTEMS 
tel.: 450.449.4770  fax: 450.449.4898 
e-mail : info@bmhsystems.com

www.therollmaster.com
When the leaders of Galena, IL, took a hard look at their downtown in the late 1990s, no one liked what they saw. Frequent water main breaks, leakage both into and from the sewer system, nuisance flooding, inefficient traffic routing, parking shortages and bumpy, pot-hole-strewn streets were just some of the most dire problems. And while the scene was distressing, officials also knew that a solution must be found. A longtime area tourist attraction, Galena’s civic officials knew that it was either fix it or they won’t come.

“They” meant wallet- and purse-holding tourists. Founded in 1826, Galena is in the northwest corner of Illinois. About 85 percent of its hundreds of homes and buildings are recorded in the National Registry of Historic Places. It’s also the state’s second most popular tourist destination, hosting an average of 1.3 million visitors annually who frequent an array of hotels, restaurants, shops, boutiques and art galleries.

As far back as 1985, the City of Galena established a downtown tax district, determining that concentrated public investment was needed to halt the deterioration. Almost 15 years later it was time to act. While city officials immediately understood that new water, sewer and storm sewer infrastructure was not in question, the choice of pavement for the new 21st century Galena generated quite an outcry. The choice of asphalt vs. concrete was debated for almost a year. The first city council meeting to hear presentations from the American Concrete Pavement Association (ACPA) and the Illinois Asphalt Producers Association drew more than 250 residents.

Soon after that initial city council meeting, the Illinois ACPA chapter sponsored two fact-finding trips to Decorah, IA, a community similar to Galena that had previously reconstructed its downtown streets with concrete. The tours of Decorah’s new concrete streetscape allowed for firsthand answers to questions and concerns about business disruption and tourism interruption. ACPA’s state chapter then helped raise funds for a marketing campaign that bolstered business in downtown Galena during construction. NRMCA and ACPA members Flynn Ready-Mix Concrete, Continental Cement and Master Builders (now Degussa Admixtures) donated $5,000. That amount, added to the city’s $250,000 expenditure, helped boost sales tax revenue in the downtown area 28 percent in spite of the reconstruction.

Local promoters held several meetings with city council officials to stress concrete’s advantages. They repeatedly refuted a city consultant who was not well versed on issues such as curing time, design life, difficult utility cuts and heat generation from reflectivity. This same consultant also presented a design comparison of 4 inches of asphalt on a 9-inch base or 9 inches of concrete on a 4-inch base, resulting in concrete being double the cost. ACPA stressed the mantra, “get in, do it right, get out and stay out” to avoid recurring resurfacing and business interruption.
The good news arrived in February 2001 when the Galena City Council voted unanimously to use concrete as its pavement of choice for the Downtown Galena Redevelopment Project. The project called for 33,000 square yards of concrete for street pavement, 14,355 square yards for sidewalks and 18,300 linear feet for curbs and gutters. A variety of textures and colors were used to create exposed aggregate sidewalks and crosswalks. A stamped, colored concrete section was used on a “public space” in front of the local post office. Reclaimed brick “pavers” were used to accent some sidewalk sections and brushed finishing was used for the street pavement.

Downtown Galena, IL, presented a bleak cityscape before city officials and local concrete promoters developed a revitalization plan.

NRMLCA member Flynn Ready-Mix Concrete supplied the concrete that was the material of choice for the Downtown Galena Redevelopment Project.
Battery problems can be an everyday occurrence for a ready mixed concrete fleet professional, especially during the winter months. Most professionals in the battery business know that it is those hot summer days and extreme high temperatures that weaken a battery. But if heat is the culprit that damages your battery, it’s that increased power demand needed for cold-weather cranking that finished the job.

Good preventive maintenance is the ready mixed concrete truck mechanic’s most important tool to get the most out of a battery’s lifetime. The first step is the simplest and most overlooked. Open the battery compartment and give the battery a good visual inspection. This task is often overlooked due to time constraints but is essential to maintain proper performance.

Make sure the battery hold downs are secure. Even though the battery appears tough and rugged, it is important that it is secured properly. As a battery ages, sediments from the charging and discharging cycle collect in the plastic grid at the bottom of the cells. Shaking or rough handling of an older battery can loosen some of this material and cause it to lodge between the positive and negative plates. This can short out a cell and ruin the battery. Make sure there are no cracks or leaks in the battery. Corrosion can be another cause of shortened battery life. Check for buildup of corrosion at the battery and cable connections. Remove the cable connection and clean it if any corrosion is found. Ensure that all cable connections are tight, including interconnecting battery cables, cables to the starter and alternator cables. It’s also a good idea to inspect the drive belt on the alternator — is it tight and in good condition? Repeat these inspection procedures more frequently in areas where chemicals are used to de-ice roads.

The new popular magnesium chloride-based deicers have been found to be highly corrosive to wires and can be the cause of premature failures of a ready mixed concrete truck’s electrical system.

As winter arrives, it’s a good time to check your batteries with a load tester. One way to test the integrity of the battery is to check the specific gravity of the liquid in each cell. A hydrometer will measure the electrolyte acid content. Variations due to temperature and amount of charge in the battery can make the readings hard to accurately interpret. Another quick check that older mechanics have used to determine battery integrity is to perform a load test. With the battery installed in the vehicle, attach a voltmeter to the battery terminals. Ground the coil to keep the engine from starting and crank the motor over for 15 seconds. If the battery voltage stays above 9.6 volts, then the battery is in a reasonable state of charge. Below that value indicates a shorted cell or a lowered capacity due to the battery reaching its useful life. For more information, ready mixed concrete truck mechanics should consult TMC Recommended Practice (specifically, RP129) for maximum allowable voltage drop when testing charge/start circuits.

Finally, should you need to order a new battery, it’s a good idea to be familiar with battery terminology. The CCA (Cold Cranking Amps) number is how much power a battery can deliver at 0° F (-18° C). The number can range from 500 to over 900 and is measured in amperes. The CA (Cranking Amps) number is the power delivered at 32° F , or 0° C. A battery’s ability to supply power is halved by every 10° F drop in the temperature. RC (Reserve Capacity) is the third number that gets referred to and, while it may not be on the battery, it’s important — especially for mixer drivers who run accessories. The RC is the number of minutes that a fully charged battery at 80° F can be continually discharged at a 25 ampere load (a substantial load) and still maintain a voltage of 10.5.

Remember, the battery is an essential part of a mixer truck. Proper care and knowledge of its capabilities by drivers and mechanics alike can help reduce costly downtime and provide dependable performance.

For more information, contact Tom Pittman at tom.pittman@aggregate.com.
Life is simpler when you have a Mack® Integrated Powertrain. First of all, it works better because all the components — engine, electronics, transmission, carriers, axles and suspension — are precisely built to work together right from the beginning. That’s the power of smart engineering. Secondly, there’s only one warranty instead of six. No confusion or finger-pointing between suppliers if something goes wrong. It’s all Mack so you know exactly where to turn for service. The Mack Integrated Powertrain. It’s one less thing to worry about. Six, if you count each component. For details, call 1-800-922-MACK or visit www.macktrucks.com
PROTECT YOUR CONCRETE SLAB INVESTMENT.

SOFF-CUT® is the only real solution for eliminating random cracking in concrete.

Today’s demand is for a better looking slab, natural looking floors and a job done on time. The only way to achieve this is by cutting the slab right after troweling—before micro cracking has begun.

Soff-Cut International, Inc. is a proud member of the American Concrete Institute.

The following is an excerpt from ACI-302.96 (Guide for Concrete Floor and Slab Construction):
The Early-Entry Dry-Cut process is normally used when early sawing is desired.... Early-Entry Dry-Cut joints are formed using diamond-impregnated blades.... The timing of the Early-Entry process, however, allows joints to be in place before development of significant tensile stresses in the concrete; this increases the probability of cracks forming at the joint when sufficient stresses are developed in the concrete.

1-800-776-3328 • www.soffcut.com

Soff-Cut International, Inc.
One of the most effective ways to expand and improve the use of your building product is by providing technical resources to the people who specify your product. Remember architects and engineers don’t buy building products but they do have the monumental task of designing complex construction projects under pressure of shrinking schedules and budgets. Projects and building codes are becoming more complex and designers often don’t have time to learn about the innovative solutions your product offers. Anything you can do to make their job easier is extremely valuable. Remember, architects and engineers don’t buy your product so they don’t need to be sold, but they do need to be educated.

Education can come in many forms but one of the most effective is an old standard: the box-lunch seminar. Most design offices schedule periodic lunch-time seminars where they invite product manufacturers into their office to deliver an education program about their product. The product supplier often buys lunch for people attending the seminar. It’s a win-win situation since the product manufacturer educates designers about their products and designers receive valuable continuing education (and lunch).

Another opportunity to educate designers is to participate with local chapters of professional organizations such as the American Institute of Architects (AIA), American Concrete Institute (ACI), American Society of Civil Engineers (ASCE) or Structural Engineers Association (SEA). Many architects and engineers belong to these local professional organizations because they offer continuing education. These local organizations often rely on product suppliers to provide continuing education at monthly meetings. It’s a great opportunity to educate a large group of specifiers.

What makes education even more attractive is that most registered architects and engineers need continuing education to maintain licensure. Architectural boards in 30 states and 10 Canadian provinces have implemented mandatory continuing education for re-licensure. In addition, the 70,000 members of AIA must complete 18 hours of continuing education annually to remain in good standing. Similarly, over 25 states have mandatory continuing education for registered professional engineers, with many states requiring as many as 15 Professional Development Hours (PDH) per year.

Recognizing the need to provide continuing education for their members, AIA developed the AIA Continuing Education System (AIA/CES) to formalize the process for their members and education providers. Product suppliers and trade/professional associations can register with AIA/CES as education providers and develop seminars using the AIA/CES guidelines. Registered providers can promote themselves as an “AIA/CES Registered Provider” and can use the official AIA/CES logo to promote their affiliation with the program. Registered Providers can advertise their education programs on the AIA website. In addition, Registered Providers can exhibit at the AIA/CES Marketplace, a special expo dedicated to continuing education that takes place at the annual AIA convention.
Most states recognize the AIA/CES as the primary source of professional development for their licensed architects. Many states also recognize the AIA/CES program as a source of professional development for licensed engineers. The cost of registration varies from $525 per year for trade/professional associations to $3,000 per year for national product suppliers. The cost is lower for companies that provide continuing education in only one or two AIA regions. For more information about the AIA/CES program visit www.aia.org/conted.

In its continuing effort to educate architects and engineers on the latest applications of concrete technology, NRMCA has become a Registered Provider with an AIA/CES. NRMCA staff present continuing education seminars to architects and engineers via office visits and local and national conferences. Currently, NRMCA offers the following seminars:
• LEED Green Building Rating System and Concrete – 1 hour
• Introduction to Parking Area Design and Costing – 1 hour
• Parking Area Design and Costing – 5 hours
• The P2P Initiative: Performance-based Specs for Concrete – 1 hour

Several NRMCA members and state allies have taken advantage of the NRMCA seminars by organizing programs for architects and engineers and inviting NRMCA staff to present at the programs. They’ve partnered with local chapters of AIA, ACI, and ASCE to attract attendees. NRMCA is also working on a strategy to allow NRMCA members to present the NRMCA seminars. In addition, several of these seminars are offered by NRMCA as distance learning programs on the Internet or on CD-ROM. For more information about NRMCA’s Continuing Education System visit www.nrmca.org/education or contact Lionel Lemay, NRMCA senior director of applied engineering, at LLeMay@nrmca.org or 847-918-7101.
What do the Empire State Building, Interstate 81 and creating better wildlife habitat have in common? Well, in this case they each involve the concrete industry. The first two examples have a more obvious link. They are man-made structures that required concrete, and lots of it. In the latter case, the Wildlife Habitat Council (WHC) has opened discussions with the National Ready Mixed Concrete Association to explore how WHC can assist association members in designing and implementing wildlife habitat programs at ready mixed facilities. These operations are located for the most part on small pieces of property, usually a few acres, and generally in suburban or urban settings. The goal of the WHC is to help the ready mixed industry appreciate the opportunity of playing a role in creating, enhancing and restoring available wildlife habitats and using them for environmental education and outreach.

WHC, a non-lobbying, non-profit organization, has worked with many concrete-producing corporations, including Lafarge North America Inc., Vulcan Materials Company and Hanson Building Materials America, to assist with the development of voluntary wildlife enhancement programs at their operating facilities. A list of current members associated with sand, gravel and stone extractive industries and with ready mixed concrete are identified in Table 1.

**Table 1: NRMCA Members Who Are Members of the Wildlife Habitat Council**

<table>
<thead>
<tr>
<th>Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate Industries, Inc.*</td>
</tr>
<tr>
<td>Ash Grove Cement Company*</td>
</tr>
<tr>
<td>Florida Rock Industries, Inc.*</td>
</tr>
<tr>
<td>FMC Corporation*</td>
</tr>
<tr>
<td>Glacier Northwest*</td>
</tr>
<tr>
<td>Lafarge North America Inc.*</td>
</tr>
<tr>
<td>Oldcastle Materials*</td>
</tr>
<tr>
<td>Rinker Materials Corporation*</td>
</tr>
</tbody>
</table>

* Indicates corporation is a member of both the Wildlife Habitat Council and the National Ready Mixed Concrete Association.
Through involvement with WHC, companies are provided the opportunity to restore natural habitat in and around their workplace, as well as unite with local communities. WHC currently has nearly 100 corporate members, along with more than two dozen conservation organizations and a growing list of universities and government agencies. Additional information about the council can be found at www.wildlifehc.org.

Lafarge North America Inc., the largest diversified high-quality construction material supplier in the United States and Canada, is one notable example of the proven success between corporations and WHC. As a supplier of such materials as concrete and asphalt, Lafarge has been involved with WHC since 1992 and has paved the way for similar corporations to achieve a better ecological balance. Currently Lafarge has 50 of its sites active with the WHC, with 15 of them having WHC-accredited habitat enhancement programs. Their sites have implemented such projects as nest box construction, native plantings, wetlands restoration and educational outreach programs. They plan to continue increasing their involvement with WHC and encouraging all facilities to establish voluntary wildlife habitat enhancement programs and have them certified by WHC. A good example of Lafarge's success is located at its Fredonia Site in Kansas, where an initial property inventory proved a lack of cover and living space for a variety of species. Employees solved that problem by erecting floating geese nests in ponds and a nesting island on a settling basin, preventing the constant problem of raccoons stealing geese eggs. Furthermore, the wildlife team engaged the community by working with elementary and middle school students in the Fredonia School District to build eastern bluebird nest boxes and plant a butterfly garden. Such a pollinator garden is a project that requires very little effort and very little space, yet yields enormous results.

A second noteworthy example of the success that follows when corporate conservation and educational programs are integrated with local communities is Rinker Materials Corporation. Rinker, a WHC member since 1996, has six of its operations currently pursuing wildlife habitat enhancement programs. A closer look at one of these sites, the 474 Sand Mine situated seven miles west of Walt Disney World in Clermont, FL, shows how a smaller endeavor can result in a thriving wildlife habitat. Its original goal, to restore a 26-acre lake to a wetland, resulted in a 1,250 acre-outdoor classroom — in just one year!
Some of the Lafarge North America cement plants that have worked and are currently working with WHC have found strong results. The Harleyville Cement Plant in South Carolina contains forested and wetland areas. The regular flow of groundwater from the quarry creates small ponds that are a natural habitat for migratory waterfowl, resident alligators and other species. The Paulding, OH, facility has instituted “Hillside Wildflowers,” which through the applied use of topsoil and planted blend of native wildflowers, helps deter erosion between the cement plant and the quarry. As these examples show, there are many opportunities in the ready mixed concrete business that lend themselves to habitat reconstruction and preservation.

Vulcan Materials Company, a WHC member since 1989, introduced the program to Cemex in 1992. This site, also known as the Brooksville Quarry, is in Hernando County, FL. On its expansive property of 4000 acres of land, approximately 40 acres are available for wildlife management programs. With such lofty goals as creating a pond for fish and waterfowl and enhancing a hunting/feeding ground for birds of prey, the quarry has successfully built shelters, perches and sunning poles for birds and waterfowl; provided a suitable habitat for birds of prey; created pond platforms for turtles and continued its involvement with the Chassahowitz Interagency Black Bear Working Group. Another successful Vulcan venture is the 115 Quarry in North Carolina. Some of its most recent accomplishments include planting wildflowers in previously established pollinator gardens surrounding the main office pond, and construction and then placement of butterfly boxes. Future interests include wild turkeys and stocking a hunting creek with rainbow trout. Vulcan Materials has 64 facilities working with the council and 36 have accredited wildlife habitat enhancement programs.

Wildlife enhancement programs, designed by WHC biologists, are tailored to each particular site and facility. Whether the land available for wildlife management is 1000 acres or just one, WHC can suggest potential programs and assist with wildlife management. WHC looks forward to expanding its outreach efforts to ready mixed concrete facilities and surrounding communities. For more information, contact WHC at 301/588-8994 or email whc@wildlifhec.org.
Since 1905 London has been a leader in mixer technology.

Standard Features:
- LENDOX 220 Steel Drum and Fins
- CorTen Corrosion Resistant Steel Pedestals, Fenders and Supports
- Trasmital High Torque Gearbox
- “Delta” Drum Control
- Engine Driven Chute Lifter
- Double acting Chute Cylinder
- Midship Signal / Clearance Light
- Upper Station Water Hose
- Remote Grease Fittings for Drum Rolls

Optional Features:
- Wireless Remote Control
- Constant Speed Control
- Chute Assist / Chute Stopper
- High Performance Package
- Pause/Resume Control
- Tarp under Drum / Infinite Chute Lock
- Aluminum Water Tank, Fenders, Wheels and Chutes.

London Machinery Inc.
485 McCormick Boulevard, London, Ontario, Canada N5W 5N1
Tel: (519) 453-8880 • 1-800-713-0150
Fax: (519) 659-2306 • www.lmi.ca

Performance • Durability • Safety

See the London Team in booth # 8437 at Conexpo-Con/Agg 2005.

The Professional’s Choice Since 1905
Changes to ASTM C 150

Ensure Concrete Performance and Offer Environmental Benefits

By John Melander
Director, Product Standards and Technology
Portland Cement Association

This past May, the predominant cement standard for the U.S., ASTM C 150—Standard Specification for Portland Cement, made a change to permit the use of up to 5 percent limestone in portland cement. European, Canadian, Mexican and other cement standards around the world have developed and taken advantage of this technology for 20 to 30 years. The experience and information developed in those countries, coupled with extensive laboratory research in the U.S. and abroad, provided the technical basis for acceptance of these provisions within the rigorous ASTM standards development process. Data and experience demonstrate that cements containing up to 5 percent limestone provide workability, durability and strength at least equivalent to cements without limestone while providing significant environmental benefits and making ASTM C 150 consistent with cement standards used in many other countries.

It is important to note that no change was made to the existing chemical or physical requirement in ASTM C 150 (See What Changed in C 150?). The cement industry’s effort to share information and data about the change prior to and during the standards development process encompassed soliciting NRMCA’s Research Engineering and Standards (RES) Committee review of the proposal and supporting documentation. Many of the provisions adopted within ASTM C 150 reflect NRMCA RES input, including the requirement for determining and reporting the amount of limestone used.

Parallel data using cements with and without limestone has been made available from several manufacturers that have supplied Canadian and U.S. markets in past years. Figures 1 through 4 show an example of concrete strengths at 3, 7, 28 and 56 days from one such manufacturer. The CSA Type 10 cement contains 3 percent limestone, while the ASTM Type I-II cement contains no limestone. Both are manufactured at the same facility from the same clinker. The concrete mixture contains 3/4-inch top size coarse aggregate, 470 pounds of cement and is mixed to a 5- to 6-inch slump for all mixes. Comparable strengths are exhibited at all ages for cement with limestone as optimized by the manufacturer to cement without limestone. Optimization by the manufacturer is important to the technology. It is primarily through improved particle packing characteristics that equivalent performance is made possible for cement using up to 5 percent limestone.

What Changed in C 150?

The primary change to ASTM C 150 is new language that states: “5.1.3 Up to 5.0 percent limestone by mass is permitted in amounts such that the chemical and physical requirements of this standard are met. The limestone shall be naturally occurring, consisting of at least 70 percent by mass of one or more of the mineral forms of calcium carbonate.” The standard also requires that when limestone is used in cement, the manufacturer shall report in writing the amount used and when requested provide data on physical and chemical properties of cement with and without limestone. Provisions are included for determining limestone content of cement and correcting Bogue potential phase composition calculations. The example mill test report in the Appendix of ASTM C 150 has been updated to illustrate how to report limestone content of cement and calcium carbonate content of limestone (See Fig 5). No changes were made to the existing chemical and physical requirements of ASTM C 150.

ASTM C 150-04 is available in either electronic or print format from ASTM International in West Conshohocken, PA, 19428; (610) 832-9585 or online www.astm.org.
While internationalization of ASTM C 150 was the trigger for considering changes to the standard, perhaps a more significant factor is the environmental benefits afforded by the use of limestone in portland cement. These include a reduction in use of raw materials, reduced energy consumption and reduced greenhouse gas emissions while ensuring required product performance. Assuming (based on experience in Canada) that cement is made with an average of 2.5 percent limestone, annual environmental benefits nationwide would be:

- Reduction in raw materials use of over 1.6 million tons
- Reduction in energy use of over 1.25 x 1013 kJ (11.8 trillion BTU)
- Reduction in carbon dioxide emissions of over 2.7 million tons
- Reduction of cement kiln dust waste of over 190 thousand tons

This reduction in environmental impact is approximately equivalent to two one-million ton cement plants. The carbon dioxide reduction of roughly 2.6 percent is particularly relevant and is a significant component of the cement industry's voluntary commitment to reduce CO2 emissions by 10 percent (from a 1990 baseline) per ton of cementitious product sold by 2020. It is for this reason that the environmental benefits of the provision were endorsed by the EPA. The use of limestone in cement is part of the cement industry's plan to reduce CO2 emissions – which includes:

- Improved manufacturing process efficiency
- Product formulation using less calcined materials, and
- Development and promotion of sustainable solutions using concrete products

Record cement consumption demands enhance the benefits and highlight the timeliness of the change. It is not often that a cement standards change can ensure performance and have a positive impact on the environment, cement production capacity and international trade. Those benefiting from this change include users, producers and specifiers of cement and concrete plus our society as a whole.


For more information, contact John Melander, PCA, 847-966-6200, jmelander@cement.org
## ABC Portland Cement Company
### Qualitytown, N.J.

**Plant:** Example  
**Cement Type:** II  
**Date:** October 18, 2004  
**Production Period:** October 2, 2004 - October 8, 2004

### STANDARD REQUIREMENTS
**ASTM C 150 Tables 1 and 3**

<table>
<thead>
<tr>
<th>Item</th>
<th>Spec. Limit</th>
<th>Test Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>SiO₂ (percent)</td>
<td>20.0 min</td>
<td>20.6</td>
</tr>
<tr>
<td>Al₂O₃ (percent)</td>
<td>6.0 max</td>
<td>4.4</td>
</tr>
<tr>
<td>Fe₂O₃ (percent)</td>
<td>6.0 max</td>
<td>3.3</td>
</tr>
<tr>
<td>CaO (percent)</td>
<td>A</td>
<td>62.9</td>
</tr>
<tr>
<td>MgO (percent)</td>
<td>6.0 max</td>
<td>2.2</td>
</tr>
<tr>
<td>SO₃ (percent)</td>
<td>3.0 max</td>
<td>2.7</td>
</tr>
<tr>
<td>Ignition loss (percent)</td>
<td>3.0 max</td>
<td>2.7</td>
</tr>
<tr>
<td>Na₂O (percent)</td>
<td>A</td>
<td>0.19</td>
</tr>
<tr>
<td>K₂O (percent)</td>
<td>A</td>
<td>0.50</td>
</tr>
<tr>
<td>Insoluble residue (percent)</td>
<td>0.75 max</td>
<td>0.27</td>
</tr>
<tr>
<td>CO₂ (percent)</td>
<td>A</td>
<td>1.5</td>
</tr>
<tr>
<td>Limestone (percent)</td>
<td>5.0 max</td>
<td>3.5</td>
</tr>
<tr>
<td>CaCO₃ in limestone (percent)</td>
<td>70 min</td>
<td>98</td>
</tr>
</tbody>
</table>

| Potential (percent)       | A           | 50          |
| C₃S                      | A           | 21          |
| C₂S                      | A           | 8 max       |
| C₃A                      | A           | 6           |
| C₄AF                     | A           | 10          |
| C₄AF + 2(C₃A)            | A           | 22          |

A Not applicable.

### OPTIONAL REQUIREMENTS
**ASTM C 150 Tables 2 and 4**

<table>
<thead>
<tr>
<th>Item</th>
<th>Spec. Limit</th>
<th>Test Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₃S + C₃A (percent)</td>
<td>58 max</td>
<td>56</td>
</tr>
<tr>
<td>Equivalent alkalis (percent)</td>
<td>B</td>
<td>0.52</td>
</tr>
</tbody>
</table>

B Limit not specified by purchaser. Test result provided for information only.

C Test result for this production period not yet available.

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of the ASTM C 150-04 specification.

Signature: ___________________________  Title: ___________________________

---

**Fig. 5** Adapted from ASTM C150-04 Appendix X1.1. Information related to use of limestone in cement is shown as red underlined font.
Titan America has the solution for all your concrete needs:

- Optima™ – Self-consolidating concrete
- Envira™ – Pervious concrete that is rated as greenspace
- Fiber reinforced concrete
- Colored concrete
- Flowable fill
- Flowing concrete (high slump)
- Exposed aggregate concrete
- Lightweight concrete
- Underwater (anti-washout) concrete
- Other value engineered solutions for your project

CALL US TODAY!
Our quality assurance experts will formulate the right concrete for your needs.
New Standards for Mixing Water

By Colin Lobo, Ph.D.,
Vice President of Engineering, NRMCA

The process of developing standards through consensus can be a grueling effort, but the benefit is an awareness of the issue and some agreement between producers and purchasers of concrete. Case in point is the recent passage of a new specification for mixing water by ASTM Subcommittee C09.40 that is responsible for ASTM C 94, Specification for Ready Mixed Concrete. Two standards were approved: ASTM C 1602/C 1602M-04 Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete and ASTM C 1603/C 1603M-04 Standard Test Method for Measurement of Solids in Water. Along with this, a revision to C 94 removes the requirements for water within the specification and makes reference to C 1602, as it does for all other ingredient materials used to produce concrete.

The primary purpose of the effort was to address the reuse of process water (wash water) from ready mixed concrete production as mixing water in concrete. The statistics that support this need are astounding. Using conservative estimates, nationally the volume of returned concrete exceeds 15 million cubic yards and the volume of process water generated exceeds 8 billion gallons annually. NRMCA estimates that it costs the ready mixed concrete industry $60 million annually to comply with environmental regulations.

When the issue first surfaced in the early ’70s on the West Coast, several members of NRMCA collected data on the characteristics of wash water in settling ponds. This facilitated a revision to C 94 in 1978 that permitted the use of wash water as mixing water in concrete (and the producer, too). Since then, there has been no change in the specifica-
tion. On the operational side, the requirement of complying with environmental regulations has increased 10 fold, with recent enforcement construing violations of the Clean Water Act as criminal violations. The volume of recycled water produced at a concrete production facility is significantly higher than that which can be reused and/or processed for discharge economically. Innovations in equipment and chemical admixtures have since allowed the concrete producer to better manage process byproducts and achieve a “zero-discharge” production facility. Many ready mixed concrete producers in the U.S. and Canada have made the financial and time commitment to do so. In Europe and Japan, this is standard operating procedure.

The standards are needed to catch up with industry practice. An effort to revise the provisions for water was initiated in about 1995. Following several failed ballots on revisions to C 94, the subcommittee evolved toward developing a separate specification for mixing water in concrete that was finally approved in October 2004.

ASTM C 1603 establishes a performance basis for qualification of water for use in concrete. It distinguishes between sources of water as potable, non-potable and water from concrete production operations and establishes qualification requirements by requiring a certain frequency of tests depending on what the producer plans to use. Combined water is when one or more of the sources are used in combination. Criteria apply to the total mixing water in concrete whether it is an individual source or a combination of one or more sources. The primary or mandatory criteria are to qualify the proposed water for effects on strength and setting time of concrete. The criteria have not changed from the requirements of C 94 in that “test” water should not reduce strength by more than 10 percent or affect the set time by more than 60 minutes earlier or 90 minutes later compared to a concrete mix with tap water. The difference is that while the earlier provisions required these tests to be conducted on mortar and cement pastes, the current standard allows this qualification to be done with either lab or field concrete batches. The other set of criteria, which are optional, are related to the chemistry of the water in terms of concentration of chlorides, sulfates, alkanis and total solids. These are optional in that the purchaser must specifically invoke one or more of these items when the concrete is ordered. These criteria have not changed from the previous requirements and also apply to the total mixing water.

Testing frequency for density of water and for the other criteria in accordance with the standard are defined for different water sources and are indicated in the accompanying table. The reference to Table 1 in C 1602 is the mandatory criteria for strength and setting time, while Table 2 lists the criteria for the optional requirements discussed above. Potable water is permitted for use without any testing. Non-potable water can be taken to mean storm water or water from streams and other natural sources that cannot be consumed by humans. Water from concrete production represents process or wash water.

### Table: Testing frequency for density of water

<table>
<thead>
<tr>
<th>Water Sources</th>
<th>Combined Water Density, g/mL</th>
<th>Testing Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potable</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Non-Potable</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Concrete Production</td>
<td>&lt;1.01</td>
<td>6 months; annually after 2 tests</td>
</tr>
<tr>
<td></td>
<td>1.01 – 1.03</td>
<td>Monthly; 3 months after 4 tests</td>
</tr>
<tr>
<td></td>
<td>&gt; 1.03</td>
<td>Weekly; monthly after 8 tests</td>
</tr>
</tbody>
</table>

A Testing frequencies apply to the combined mixing water when it is wholly or partially composed of the listed source as defined in Section 3.

Now that the standards are in place, it will take some time before the producers and purchasers understand the intent and how to use them. Standards continue to evolve as the needs change, as will these standards. The primary effort to establish the precedent was, however, the hardest step. The ASTM Subcommittee is now working on something C 94 is silent on — a means to reuse returned concrete by batching on top of it. Now that will take a long time to get accomplished!

For more information, contact Colin Lobo at clobo@nrmca.org.
Why trust your productivity and reputation to equipment that doesn’t have one?

When a batch plant wears a Concrete Plant Manufacturers Bureau (CPMB) Rating Plate it means the manufacturer is an NRMCA-endorsed “preferred concrete production equipment supplier” and assures that the equipment meets strict design and rating standards which are approved by the NRMCA Board of Directors.

The potential return on an investment in a concrete plant or components of a plant that receive CPMB Rating Plate certification is considerable.

A CPMB Rating Plate on a piece of equipment:

- 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
Many in the construction industry are following with great interest the much-publicized cement shortage. Still a regional phenomena, as of late summer industry reports tracked the cement shortage problem in 29 states. In areas hit hardest, like the Southeast (Florida) and the Southwest (Arizona), dramatic price increases, work slowdowns and project delays are costing the local construction community millions of dollars.

Experts aren’t saying when relief from the cement shortage can be expected. Many close to the industry predict a decrease in housing demand, resulting from rising interest rates and increased import supply realized with added availability of bulk material ocean vessels, will help alleviate the situation in the fourth quarter of this year. This is good news if you are a ready mixed concrete producer faced with the cement shortage. In the hardest hit regions, producers are reporting cost increases of up to 25 percent and corresponding profit loss of 10 to 15 percent.

Whether or not you are faced with the cement shortage in your area, the time is now to begin exploring ways to extend the volume of concrete produced with a given amount of cement. Material science and chemical admixture technology have converged to reduce dependency on cement while providing enhanced strength and performance benefits in the final product. Progressive ready mixed producers are experimenting now with new, optimized mix designs using alternate materials that bring value to their bottom line and still give their customers— the contractors—the workability and performance features required for specific applications.

Exploring and Implementing Concrete Mix Optimization for Increased Yield and Profitability

By Blanche Davidson, Product Line Manager
Degussa Admixtures, Inc.
The Materials for Concrete Mix Optimization

**Slag** is a byproduct of the manufacture of steel in a blast furnace, collected as it floats on the surface of molten iron. In a concrete mixture, slag reacts with portland cement hydration byproducts and water to create more calcium silicate hydrate (C-S-H) gel to enhance cementing properties. Depending on regional availability, slag is similar in cost or less expensive than cement. Accepted as a replacement for cement in concrete mixtures up to 50 percent, some producers have pushed the technology envelope to achieve 90 percent cement replacement using slag.

Using a specific and tested combination of accelerating and water-reducing chemical admixtures designed to counteract slow set time and delayed strength gain, as well as possible bleeding, producers can custom design a high slag concrete mixture that exhibits excellent workability, increased ultimate strength and greater resistance to alkali-silica reactivity, sulfate attack and corrosion control.

**Fly Ash** is a byproduct of coal combustion in the electric utility industry. It is collected and condensed from the flue gases using electrostatic precipitators, forming spherical shaped particles. Fly ash reacts with portland cement hydration byproducts and water to create more calcium silicate hydrate (C-S-H) gel to enhance cementing properties. The cost of fly ash is less than the cost of cement and use of fly ash is now generally accepted in the 15 to 20 percent range. Progressive ready mixed concrete producers have proven the success of higher-level fly ash replacement and are pushing for 60 percent replacement of traditional cement content.

As with slag, including fly ash in a mix design reduces water demand and thus increases final strength. Workability is enhanced and fly ash mixtures often exhibit reduced bleeding and lower heat of hydration in mass pours. A durable final product, concrete containing fly ash features reduced permeability and resistance to sulfate attack. To develop a high performing fly ash mix, concrete producers use accelerating admixtures and water-reducing admixtures to offset possible slow setting times and/or delayed strength gain. Because of the potential problem that unburned carbon will absorb the air-entraining admixture in concrete mixtures containing fly ash, most concrete producers are familiar with supplementary cementitious materials – slag, fly ash and silica fume – but the art and science of using these materials to their fullest advantage and developing concrete mixtures that exhibit equal and even enhanced performance at high replacement levels is still a relatively untapped area. The innovative chemical admixture technologies that can facilitate cement replacement levels double and even triple the traditionally accepted 10 to 25 percent are available now, and producers across the country are experimenting with and implementing optimized mix designs in an effort to better control their productivity and their profits.
ash, careful attention must be paid to the air content.

*Silica fume* is a pure, amorphous silica collected during the manufacture of silicon and ferrosilicon alloys. When added to concrete mixtures, it reacts in a similar fashion to slag and fly ash, but because a silica fume particle is 100 times smaller than a cement grain, it is micro filling and adds density to the concrete, resulting in significantly enhanced durability.

In most markets silica fume costs more than cement so the use of this material is reserved for high performance mixtures where specific attributes are to be achieved, not as a replacement for cement in a cost/benefit analysis. In specific applications where it costs more than cement, the price increase is easily offset by the improved cohesiveness, reduced bleeding, increased ultimate strength, reduced permeability and increased electrical resistivity that is achieved when adding silica fume – and an appropriate high-range water-reducing admixture – to a concrete mixture.

The Chemical Admixtures for Concrete Mix Optimization

The latest generation of concrete admixtures offers new chemistries that allow producers to use supplementary cementitious materials to increase concrete production volume with less cement, improving the cost of the mix without sacrificing any performance attributes.

Here’s how various admixture technologies are used in mix optimization:

**Water-Reducing Admixtures.** When a water-reducing admixture is used to reduce the water content of a concrete mixture while maintaining a given level of slump, the strength of that concrete increases. The cement of that mixture can therefore be reduced to the point where the strength is the same as that of the higher water content concrete mixture. This mixture modification may impact the workability and finishability characteristics of concrete. A high performing mid-range water-reducing admixture, as well as the addition of a viscosity-modifying admixture (or a combination of admixtures from both product families), will produce a concrete mixture that is lean on cement yet provides similar or enhanced workability and finishability for the contractor. In mixes that contain silica fume, it is important to choose a high-range water-reducing admixture based on polycarboxylate technology to improve concrete workability.

**Accelerating Admixtures.** The addition of supplementary cementitious materials such as fly ash and ground granulated blast-furnace slag in concrete mixtures often slows the setting time and strength development of the concrete. The addition of accelerating and/or a combination of accelerating and water-reducing admixtures, as well as corrosion inhibiting chemicals that can also accelerate set, can be used to ensure desired performance levels. Because cement and supplementary cementitious materials from different sources and regions can have different chemistries, in particular fly ash, a field evaluation must be performed to determine the type(s) and dosage(s) of admixture(s) needed to achieve the desired performance with a given set of materials.

**Viscosity-Modifying Admixtures.** The changes in concrete mix consistency that may be encountered when substituting supplementary materials for cement can be overcome in many cases with the addition of a viscosity-modifying admixture (VMA). The addition of
a VMA will improve the workability, pumpability and finishability of a concrete mixture. The workability benefits of a VMA are more pronounced at lower slumps and in lean mixtures. The addition of a VMA admixture will also improve workability and finishability in high-strength concrete and high-performance concrete mixtures that are sticky.

Using Technology for Profit Improvement

With supplementary cementitious materials and advanced technology chemical admixtures, ready mixed concrete producers are finding that they can develop new, high quality concrete mixtures that provide the characteristics required by contractors, and the final performance properties for specific applications, while improving their operations.

“We take a holistic approach to mixture proportioning,” explained Kevin MacDonald, vice president-engineering services of Cemstone Products in Mendota Heights, MN. “The need to make concrete that meets the written and unwritten requirements of our customers, as well as be a good steward of the environment, has driven us to look outside the traditional mixture proportioning methods. With admixture technology rapidly reducing the unintended side effects of pozzolanic replacement materials, we can realize the potential of this emerging science to deliver greater performance while protecting our profitability and dependence on specific materials.”

Cemstone approaches every mix from a materials science standpoint and works to develop and market concrete mixtures that deliver the desired plastic and hardened performance characteristics. Over the past few years, it has been able to achieve replacement levels of 90 percent using pozzolanic materials.

Exploring and Implementing Mix Optimization

Chemical admixture technologies can and are being used by concrete producers to improve not only the concrete they manufacture and market, but their overall business operations as well. Producers interested in learning more about how to implement mix design optimization in their operations should contact their admixture supplier for assistance.

“With today’s innovative admixture technology, we can push cement contents lower than ever before while minimizing any negative effect on strength development, setting time, durability or finishability,” remarked Tate Coverdale, technology director from the concrete laboratory at Degussa Admixtures, Inc.

“Looking at your mixtures and optimizing the ingredients is just good business,” said MacDonald of Cemstone, “We found a significant reduction in production costs in the order of 15 percent and are giving our customers the concrete that they want, not a blend of materials that they think will get them there. Performance-based mixtures take advantage of modern materials and chemical admixtures to raise the bar for our industry.”

For more information, contact Blanche Davidson at blanche.davidson@degussa.com.
We began with the concept of a construction site…

CEMEX knows construction from the ground up. We know the success of any building project depends on getting quality materials – exactly when and where they’re needed. We also know the power of technology. And we are using it to empower our customers and employees – whether enabling you to order cement or ready mix concrete online, or enabling a concrete technician to customize mix designs for a wide variety of construction projects.

Our passion for change – and use of technology to achieve it – continues to transform our company, and provide better service for you, our customer.

To learn more about us, visit www.cemex.com.
At NRMCA’s 2004 Operations, Environment and Safety Forum & Expo in San Francisco, there were dozens of ‘producer to producer’ seminars. One of the safety oriented topics detailed the 10 OSHA standards that are most often cited by compliance safety and health officers at ready mixed concrete operations. In the period beginning in January 1998 and extending through June 2004, more citations were issued for non-compliance with the OSHA confined space standard (Title 29 Code of Federal Regulations 1910.146). Ready mixed concrete producers in the U.S. and its territories received more than 450 citations from both state and federal OSHA for violating the confined space standard during this period.

There are guidelines to aid producers in following confined space standards when doing drum chipping. Adhering to these guidelines will help companies protect employee safety and health as well as improve compliance with the OSHA permit-required confined space regulation.

Ready Mix Truck Drum Chip Out Guidelines

The following general guidelines are for use in practice at ready mixed concrete plants and in maintenance shops where drum chip out occurs:

- Drum chip out is a permit-required confined space unless all these hazards can be eliminated or otherwise controlled:
  - Inhalation hazards from respirable dust
  - Noise hazards from equipment or tool operation
  - Other serious physical hazards including but not limited to falling concrete, slipping and falling on wet, muddy surfaces...
- All mixer drum controls must be disconnected and tagged. The truck’s engine must be turned off, keys secured and battery cables disconnected to prevent start-up. In addition, a chock, sling or other similar device to prevent drum movement must be used during chip out. A “Do Not Operate,” “Work In Progress” or other similarly worded tag can be placed around the ignition switch, on the dashboard or other conspicuous location while work is being performed.
- All hatches on the drum must be open. An industrial vector fan or ventilating fan with similar power set to blow air must be placed at the charge hopper for the time that work is being performed inside the drum and the vector fan must be operated during the work. (A comfort fan is not appropriate for this work and cannot be used.)
- The drum assembly shall never be rotated while an individual is inside the drum.
- The company has a responsibility to determine the levels of respirable dust generated from chipping concrete from mixer drums and the company must control and decrease the worker’s exposure to respirable dust when the level exceeds the permissible exposure limit (PEL). The company also has a responsibility to ascertain the noise level generated during the work and to control and decrease the level if it exceeds the PEL.
- At least one individual must be stationed outside the mixer drum as an attendant while drum chipping work is being done.


For more information, contact Thomas Harman at tharman@nrmca.org.
WE PROVIDE GLOBAL SERVICE WITH LOCAL “KNOW-HOW” AND ENTHUSIASM

OUR COMMITMENT IS TO PROVIDE OUR SERVICES EVERYWHERE, EVERYDAY, ON TIME.

CBMW INNOVATION WORLDWIDE

Corporate Headquarters
P.O. Box 34856
Houston, TX 77234-4856
800.231.6496
Fax: 713.910.7847

Mixer Sales Headquarters
2110 California Crossing Rd.
Dallas, TX 75220
888.727.8719
Fax: 972.402.7248

E-mail: sales@cbmwmixers.com • Website: www.cbmwmixers.com
The 8 Things You Need to Know to Lead In Your Marketplace

By A. Vance Pool, National Resource Director, NRMCA

Business today is not business as usual. Competitors are getting leaner, faster, meaner and bigger. Just when you think you have your marketplace figured out a new paradigm shift can come along and cause sweeping change. IBM held a dominant position in electric typewriters used in the business world. They made the best typewriters in the world. When was the last time you bought a typewriter? You need to proactively drive your business forward to lead in your marketplace. This article will present an overview of the eight things you need to know to lead in your marketplace. They are:

1. Know what you are good at
2. Know your competitors
3. Know how to make money not yards
4. Know where you are going
5. Know your strategy
6. Make sure your team knows where you’re going and how to get there
7. Know how to price your product
8. Know how your results measure up
Know What You are Good At

Before you can understand your marketplace you have to understand your company. Sometimes this can be a painful process. For the exercise to have value you must be brutally honest with yourself. Few companies are good at everything. What does your team excel at?

- Operational excellence
- Service
- Making your customers’ job more efficient
- Unique product offerings

• Competitive advantage provided uniquely by your team
• Information only you provide
• Business you bring to the table for your customers
• Low price

There are all kinds of business tools, consultants and matrices available to guide you through this process. Knowing your company’s strengths and weaknesses is the first step in moving your company from where it is to where you would like it to be.

Know Your Competitors

The first question is who are your competitors? It could be the other ready mixed producer down the street. It could be the steel manufacturer in another state. It is likely the asphalt plant down the road.

Once you have determined who your competitors are you want to understand their strengths and weaknesses just as you understand what you are good at. They are good at something too. Understanding your competitor’s strengths and weaknesses will allow you to plan and implement the strategy and tactics needed to succeed in your marketplace. They are the foundation upon which all else is built.

Microsoft recently announced a new version of Windows XP for Russia, India and other countries. The new “starter edition” is a scaled-down version of Windows meant to sell at a deeply discounted price to Windows XP in markets where software piracy is a major concern. In this case, Microsoft has recognized that people in developing countries have different needs and price points and have offered an elegant solution to the issue. More importantly, they realize that pirated software is their number one competitor in those markets and they have provided a viable, legal response to the needs of the marketplace. It is critical you know your competitors.

Know How to Make Money Not Yards

This is one of the most talked about subjects in our industry. Unfortunately, old habits die slowly. Would you rather sell 100 yards at a profit of $50 per yard ($5000 gross profit) or 500 yards at a profit of $10 per yard (the same $5000 gross profit)? In the old days many people would prefer the volume. Today we all realize that less yards is less wear and tear and maintenance on the mixers, trucks, conveyors and front-end loaders.
You can improve profitability by selling higher-value products like decorative concrete, pervious, flowable fill, self-consolidating concrete, SuperP — the list is larger than you think. Other things that don’t get attention but can improve your profitability are specific strategies around what types of projects you go after. At its simplest, that could be increasing the amount of commercial work versus residential. It can be much more detailed with strategies down to the specific building type.

Another profit improvement strategy involves firing unprofitable customers. Suppose you have a customer who makes your trucks sit on the site twice as long as your average customer. What does that cost you? Can you replace that customer with other business that is more profitable? These are hard questions to answer but when you can answer them you will be able to proactively decide how to lead in your marketplace.

Know Where You are Going

You have to have a goal to strive for. Set a goal on profitability, market share, operational excellence, callbacks, any items you think are important if you are going to make your business better. I believe you want to limit the goal to no more than three, and one or two is better. If you have too many goals you will lose focus as a team and potentially fail or at the minimum take longer to accomplish the goals. For a goal to be effective it must be SMART:

- **S**pecific
- **M**easurable
- **A**chievable
- **R**ealistic
- **T**ime Based

That way you can measure performance and everyone can agree whether you actually hit the mark!

Know Your Strategy (Have a Plan)

OK, you have your goal(s), you know your and your competition’s strengths and weaknesses. You have a good idea of a number of ways to become more profit-oriented and less volume-oriented. Now you can build a plan. There are many good books on business planning. Needless to say it is an exhaustive topic and we cannot give it justice in an article of this length. A wise manager once told me, “Plan your work and work your plan.”
the strategies and goals in your plan. You will need to provide any tools required to implement the strategies. They could be things like PowerPoint presentations, literature, paper forms or the like.

Know How to Price Your Product
This is something the concrete industry has historically lagged behind other building material segments. Concrete is arguably the highest-value building material used in construction. It has almost endless uses both as a structural and decorative element. If you look at the selling price of concrete, it is the bargain basement-priced building material. Prices of wood and steel have experienced huge price increases in recent decades. Concrete has not kept pace.

Prices are determined one project or customer at a time. Our industry can do a much better job of understanding our cost structure, understanding competitor’s prices and realizing the value concrete deserves to charge. By understanding both costs and value one can price more realistically. Fiber reinforced concrete is a perfect example to illustrate value. In some parts of the U.S., fiber reinforced concrete is priced just below that of the wire reinforcement it is replacing, thus saving the contractor money on initial cost of material and saving placement cost of the wire.

In a few isolated markets there are companies that will throw in fibers just to get the project. This erodes value and profits for all in the market. It is a practice that can gain business in the short term but is not sustainable.

The moral of the story is to have a pricing process that is rigorous, repeatable and based on facts and value.

Know How Your Results Measure Up
We have a plan, have implemented it and are making progress toward our goals. We have to measure ourselves versus our baseline before we started. Measure against our ongoing results. And last but not least measure against industry benchmarks. If you don’t measure it you will never improve. Metrics are key to driving performance where it needs to go.

If you execute around these eight points, you will see improvement in your business. As with any significant undertaking, the quality and quantity of effort will determine the outcome. The concrete industry has changed and improved a lot in the many years I have been involved with it. We have made progress but still have a long way to go.

Microsoft and Windows XP are registered trademarks of Microsoft, all rights reserved.

A. Vance Pool is NRMCA’s national resource director for the South Central Region. For more information email vpool@nrmca.org.
With our full range of concrete admixtures, you get improved performance, consistent quality and Paul.

From the latest technology in super-plasticizers to air entrainers, our wide variety of concrete admixtures provides you with many benefits. One of the most important benefits is the expertise that Paul (and each member of our expert team) uses to select the perfect mix design for your needs. See how our exceptional products and personal attention from Technical Specialists like Paul can help your next project.

Visit us on the Web at www.sikaconstruction.com or call 1-800-933-SIKA (7452).
Inspired by the Proud American Eagle and Built by Proud American Men

For more information contact your area Stephens Sales Representative or our Sales Office at 800 626 0200. Visit our web site at www.stephensmfg.com

Come have a look at our new Eagle Portable Concrete Plant

Stephens MFG.
PO Box 488
Tompkinsville, KY 42167
(270) 487 6774 ph
(270) 487 8368 fax

Proud Member of:
Cell Phone Technology and Ready Mixed Concrete: 
*The Possibilities are Endless for This New Piece of Equipment*

By John Carew, Carew Concrete

Just a few years ago, the thought of extensive use of cell phones by the ready mixed concrete industry was a pipe dream. Phones and pagers were used by medical doctors; certainly there was no place for these technologies in the ready mixed concrete industry. Well, in a very short time, cellular technology and personal mobile phones have infiltrated our industry to its very core. Is there a ready mixed concrete salesman without a cell phone? Is there a company executive, supervisor or manager without a cell phone? Cell phones are now like a slump cone, a grease gun, a front end loader — they are a piece of equipment that is absolutely essential to do business in the modern world of ready mixed concrete.

Enhanced verbal communications within a ready mixed concrete company were the first benefits realized from this new piece of equipment. As the technology has advanced at rapid rates, the industry has adapted. Now ready mixed safety professionals use digital cameras incorporated with cell phones to document accident scenes. Quality control personnel are using the technology to document mishandling of concrete cylinders in the field. Cell phones now have the capability of sending and receiving email and connecting to the Internet. In the not too distant future, ready mixed concrete personnel will be connected to the rest of their companies anywhere/anytime in ways that are unimaginable. At the recent OES Forum & Expo in San Francisco, a presentation was given where a live wireless hookup to a remote concrete plant was established. Video images were viewed and the stationary camera on the site was controlled by remote access.

What’s Next?

According to an article from an American Trucking Association publication, 3G is the new thing. What exactly is it? 3G is a term for a collection of standards and technologies newly released this year to enhance performance, particularly on 3G cell phone networks, and to increase data speed. A 3G cell phone is compatible with any of the languages or standards that support enhanced data speeds. 3G is an International Telecommunication Union specification for the third generation (1G was analog cellular, 2G was digital PCS) of mobile communications technology. 3G wireless promises increased bandwidth when a device is stationary, moving at pedestrian speed or in a vehicle.

With 3G cell phones, you eventually will have new features such as enhanced email, instant messaging and faster Web browsing on wireless Web with greater speed and efficiency. As the technologies become available to you, you will also be able to make purchases, manage financial information, do (online) banking and electronic fund transfers, view video clips and even play online games with 3G cell phones. For the ready mixed concrete producer, this is the same technology that will lead to advanced truck tracking, printable batch tickets from the cab and enabling ready mixed concrete delivery professionals to incorporate credit card purchases (no more COD checks or cash) from their mixer trucks.

Our new-found piece of equipment promises exciting new business opportunities to the ready mixed concrete industry for those willing to be on the cutting edge of cellular technology.

For more information, contact John Carew at carew@exepc.com.
NEW FROM TEREX ADVANCE: The premier name in front-discharge mixers is NOW the premier name in REAR-discharge mixers, too. That makes Terex Advance The Total Solution—for any concrete placement need. Front or rear, you get everything Terex Advance has come to be known for: top quality ... the wisdom of experience ... fast, responsive service, before and after the sale ... readily available parts ... and delivery you can count on. So, what’s your preference? Front-discharge, rear-discharge—or both? Any way you look at it, Terex Advance is looking mighty good for your bottom line.
There is an old Scandinavian fable that tells the story of a man wandering through the countryside with almost nothing to his name save the clothes on his back and a single nail. The version of the story I like best has the man coming to a village where the residents are quite suspicious of wandering strangers and the talk in the village is all about how hard times are and how poor the outlook for the future has become.

The wanderer’s immediate objective is to find something to eat, but he quickly discerns that charity to (hungry) strangers is not a core value for this particular village. However, some of the villagers start to listen when the man begins to describe his recipe for a really delicious soup – made with only water and a nail.

“I have the nail,” declares the wanderer. “If only someone had a kettle they could lend me, I would happily gather the wood for a fire and draw the water for my delicious soup. What’s more, I will be pleased to share the soup with all of you – as long as the kettle is big enough!”
The naysayers in the village immediately proclaimed the impossibility of such a plan and advised everyone to stay away from the wanderer. “That’s never been done… Not worth the risk… I’m not sharing my kettle with anyone!” they mumbled amongst themselves. Even so, one of the villagers ran home to get the largest kettle they owned and several even pitched in to gather wood and draw water from the village well while they waited for the kettle to arrive. With great anticipation, the villagers watched as the wanderer slowly unveiled his prize nail and reverently dropped it into the simmering water.

The wanderer took in the gathering crowd and remarked how much better it would be for everyone if they could just find a little salt to season the nail soup. “Of course,” he said, “there’s no use wishing for what we don’t have – times are hard and we should just be thankful for what we do have.” Just then, one of the villagers shyly stepped out of the crowd and offered to contribute enough salt for the whole kettle. (“Well, I never!!” the naysayers said in unison, and quite in a huff!)

The wanderer thanked her profusely and with great ceremony added the salt to the now-boiling kettle. “If we had just a few vegetables to put in our soup, can you imagine how good it would taste?” the wanderer asked rhetorically. “But times are hard, and that is simply too much to expect. We should just be thankful for what little we have.”

Before you knew it, villagers were coming forward with potatoes, carrots, corn, beans and even meat to make their contribution to the kettle. Now villagers were even volunteering ingredients without the sly hints being dropped by the wanderer and when the soup was ready it truly was the best any of them had ever eaten. “All of that delicious soup from just a single nail,” the villagers marveled. “Who would have believed that was possible?!” (The naysayers were still mumbling about what a waste of good resources the whole exercise had been, but their comments were muted because their mouths were full of soup.)

There are lots of lessons that one can draw from this fable. Cynics will say that the wanderer was just a schemer looking out for number one and the villagers were just stupid to be taken in by so obvious a ploy. After all, it’s a dog-eat-dog world and we are best served by looking out for number one, whether it’s personal or on behalf of our business.
As a state association director, I choose to interpret the fable much differently. I see the wanderer inspiring the villagers to a collaborative effort they previously perceived as impossible. By working together, with each villager contributing what he had, the village made a great pot of stew and everyone ate better than if he had continued hoarding resources and selfishly refusing to share with anyone else. Not only did they get to eat well, they also discovered the power of working together to accomplish a worthy objective. Plus, they quit feeling sorry for themselves when they focused on a positive future and quit behaving so selfishly.

In many ways, the concrete industry is like that village – we are faced with the very real challenges of operating businesses in a difficult environment and it often seems as if the best way to survive is to isolate ourselves from everyone else in the village and just take care of number one. The sad part is that viewpoint becomes a self-fulfilling prophecy and we never pause to consider the tremendous future we can create for ourselves and for the communities we live in by combining our industry resources and working together for a common goal. The good news is that there are some ‘villagers’ in our industry who believe in the power of working together and who are willing to put their money behind that belief.

On September 20th, I had the privilege of accepting one of the prestigious 2004 Kodak American Greenways Awards on behalf of the concrete industry for the Count on Concrete Bike Ride. The awards recognized only four outstanding accomplishments for trails and greenways projects across the entire United States in the past year and it was a great privilege for our industry to be included in this elite group. The awards are presented each year in Washington, D.C., as a joint effort of Eastman Kodak Company, The Conservation Fund and the National Geographic Society. Other recipients of this year’s awards included Anheuser-Busch, the Selma to Montgomery Trail and the Franklin Land Trust.

The Count on Concrete Bike Ride was very much a ‘nail soup’ effort – it simply would not have been possible without the critical contributions of a few of our own ‘villagers’ and their efforts have produced outstanding recognition for the entire industry.
try. I hope that each of you will join me in a huge ‘Thank You!’ to each of the following organizations:

- NRMCA – our first (and only) National sponsor for the ride
- Baker Concrete Construction – Regional sponsor
- Irving Materials, Inc (IMI) – Regional sponsor
- Ozinga Brothers – Regional sponsor
- Titan America - Regional sponsor
- Southern California Ready Mixed Concrete Association
- Indiana Ready Mixed Concrete Association
- Tennessee Concrete Association
- Mississippi Concrete Industries Association
- Carolinas Ready Mixed Concrete Association
- Florida Concrete and Products Association
- Florida Independent Concrete and Associated Producers
- The Concrete Network – Web site sponsor (and creator)

This group raised $47,500 on behalf of our concrete industry (individual contributions brought the grand total to $47,625) and the state associations involved in the effort were then able to distribute grant checks of more than $5,000 to trail projects in six different states, providing further opportunities to leverage very positive public relations for the concrete industry within each participating state. (Our public relations campaign in Tennessee created over one million media impressions within our state as a result of media coverage generated in conjunction with the national effort as well as having the story picked up on the AP wire and mentioned on the MSNBC Website.)

Thanks to the support of these industry leaders, your industry has been recognized as a proactive leader in the environmental community and we have been able to forge new, strategic relationships across the country that will continue to yield benefits for the entire industry in the years to come. All in all, it was a really great kettle of stew and lots of people had a good meal thanks to the efforts of a few willing workers. Just think what we could do as an industry if we all focused a little more on what we could put into the kettle instead of just thinking about what we can take out…

Alan Sparkman is the executive director of the Tennessee Concrete Association. He can be reached at asparkman@trmca.org.
EXPERIENCE WHAT A DIFFERENCE QUALITY MAKES

RUGGED DEPENDABLE PERFORMANCE

Day In Day Out
ERIE sets the standard you can count on

Make ERIE your next concrete batch plant

ERIE STRAYER COMPANY
P.O. BOX 1031 ERIE, PA 16512
1851 RUDOLPH AVE ERIE, PA 16502
814-456-7001 PHONE
814-452-3422 FAX
www.eriestrayer.com
email: sales@eriestrayer.com
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
Tarmac America—A Titan America Company • Deerfield Beach, FL
Member, National Ready Mixed Concrete Association
By all standards, John Walls achieved the American dream. He had a good job, he, his wife and two kids owned a nice house, drove two cars and took vacations. So why was Walls turning in his resignation as plant manager after 12 years with the company?

Walls grew up in a tough Indianapolis neighborhood. As a Gulf War vet with heavy equipment, maintenance and logistics operations experience, he was quickly hired as a mechanic at a ready mixed concrete facility when he returned from Saudi Arabia. Three years later, the owner sold the business to Performance Concrete, a much bigger company in Dayton. Performance changed things dramatically. Now it was all about profit. For Walls, it meant his supplies were tighter, but the Army had trained him to make things work under tough circumstances. In fact, his creative fixes attracted the attention of Performance’s area manager and Walls was promoted to plant fleet maintenance foreman. Then two years ago, Bertolucci S.p.A., Pisa, Italy bought Performance. Turnover became rampant throughout the corporation so when the plant manager quit, Walls was promoted to fill the guy’s shoes.

As with his previous promotion, Walls’ training as plant manager was self-taught and trial-by-fire. Fifteen-hour days, seven days a week were common because Bertolucci knew how to win highly competitive, big contracts with demanding specifications. With
totally new accountability methods and a sizeable increase in his plant’s annual productivity goal, Walls’ family vacation to Branson was cancelled last year; this year, Walls joined them for only two days at the beach in Daytona Beach. When the family traveled to St. Louis for a family wedding, Walls’ cell phone rang all weekend. Under the stress, Walls put on 30 pounds, his cholesterol and blood pressure were high and his temper’s fuse was getting shorter. Coupled with two teenagers in the middle of adolescent angst, his wife put her foot down. Within three months, Walls found another job at the FedEx maintenance facility at the Indianapolis International Airport. So how did Bertolucci lose Walls? How much will his knowledge drain cost Bertolucci?

Since 1994, Bertolucci has made approximately nine acquisitions, building a significant market on three continents. With its last acquisition in 2002, reported 2003 sales of $3.5 billion and 11,000 employees, it is a player in the world concrete industry. Founder Remo Bertolucci allays investor concern about the company’s debt level after his acquisitions with a consistent consolidation plan — he centralizes purchasing and other management activities, automates accounting and other back office systems and reduces the workforce. In fact, the workforce numbers are lower, but not just by corporate initiative. Turnover in the past three years annually averaged 25 percent, and among its North American ready mixed concrete group, turnover in the operations areas was as high as 35 percent.

That kind of unplanned turnover at the plant level hurts performance. By using an outside human resources consulting group, Bertolucci set out to determine why so many operations employees were leaving and what could be done to retain them. It first examined data about employee behavior and the factors that influenced it in different locations, labor markets, departments or work groups, in positions with different pay and benefits and under different supervisors. The analysis revealed a link between turnover and the company’s busy history of mergers and acquisitions. Employees knew another merger or acquisition meant consolidation was forthcoming, which provoked voluntary turnover. Management was so busy coping with the aftermath that it could not focus on leading employees through the change process. The turnover analysis also revealed that management stability and more selective recruiting were critical retention factors. Exit interviews revealed that employees left not so much for better pay but for security, broader experience and recognition of their hard work trying to cope and produce.

While the obvious solution to the turnover problem might have been to compensate the remaining employees with higher pay, the more effective and less costly solution turned out to be a concerted focus on employees’ career opportunities within their corporate division. Simply put, those who moved up the hierarchy or who even made lateral moves stayed longer, especially when the internal job change was accompanied by appropriate training within the consolidation effort. When that change was implemented, Bertolucci stopped much of its personnel hemorrhaging. Its solution only required modest investments, which in the end saved the company millions and kept stockholders happy.

Implementation started with paying serious attention to one of its most vulnerable

STOP making your business fit your software.. ADJUST your software to fit your business.

Ready-Mix enterprise software wins back the profit you’ve been giving to the competition.

- BATCHLINK for single plant operations
- BEAVER for multiple plant operations, including quarries
- Fine-tunes your mix design to give better quality product.
- Gives accurate pricing based on true material costs.
- Charges for all the little extras you missed out on before.
- Gives you total control of your business.
- Integrated quarry & readymix operations.
- Mix design management.
- Order entry.
- Truck fleet management.
- Order scheduling.
- Delivery scheduling.
- Batching controls.
- Microwave moisture sensing.
- Dispatching/ticketing.
- Invoicing, link to accounting.
- Aggregate gradation analysis.
- Mix design formulation.
- Inventory control.
- Customizable delivery tickets and reports.
- Twin shaft mixers.

Telephone: 514 634 7083 • Fax: 514 639 6945
E-mail: scaletron@scaletron.com
For the latest information, visit our Web site: www.scaletron.com or call us at 1-800-632-7083

Perfecting the Art of Concrete Production

440 - 19th Ave. Suite 230, Lachine, QC, Canada, H8S 3S2
102 A West Service Road, Suite 128, Champlain, New-York USA 12919
groups — the plant managers and supervisors who pulled daily execution all together. It was common for them to work 14 hour days, six days a week, under stress, managing 20-30 employees, many of whom were tough Teamsters. Plant managers reported they felt like jacks of all trades and master of none. For many who came up the ranks from driver with no formal training, it was quite a juggling act to have to pinch hit for other jobs to keep the plant running at full steam. At any time, the plant manager could be a batchman, driver, record keeper, janitor, heavy equipment operator, welder, maintenance guru, safety and environmental compliance officer, mentor, trainer, dispatcher, sales rep, therapist, internal investigator and disciplinarian. They had to be fit enough to take the challenges of working outside in all kinds of weather. Their duties isolated them from other plant managers and sites, so they did not learn from peers’ experiences.

Thankfully, Bertolucci recognized that deep changes had to happen if they were going to stop losing more good people like Walls.

The first change was to implement a prototype plan in the Indianapolis division that
Concrete Industry Management Program Update

Representatives from the Concrete Industry Management (CIM) program, the CIM National Steering Committee (NSC) and various regional industry supporters have been visiting universities to determine which may be a good fit for new CIM programs. Thus far, Arizona State University, Cal State-Chico and Northern Arizona University have been visited. In addition, an industry group in the greater New Jersey area is diligently working to identify potential schools.

If you are interested in aiding the effort in one of these regions or if you have interest in developing a program in other regions of the country, please contact NSC Chairman Gene Martineau at 713/499-6200 or CIM Program Director Austin Cheney at 615/904-8599.

had been successfully launched in Bertolucci’s Austrian ready mixed concrete facilities — formally train plant managers and supervisors by the industry’s trade association. In the USA, the National Ready Mixed Concrete Association (NRMCA) did just that. It offered a comprehensive course that covered the scope of a plant manager’s job, basic skills required for acceptable performance and networking contacts for inter-industry support. Because plant managers serve an important function and have responsibilities that affect issues from regulatory compliance to product quality, upon their return with newly certified skills in technical product knowledge, plant safety, environmental regulations, plant operations and ready mixed industry business principles from NRMCA, they were armed with confidence to increase their plants’ productivity.

What the course taught them was that a very typical response to increase productivity is to try to reduce waste. To do so, managers work even harder but in the end often find that the harder they work, the more elusive the benefits become. In fact, studies have shown that only a quarter of process improvement projects delivered plant-wide benefit; half have no bottom line impact and the remaining 25 percent have a negative impact on the plant’s overall productivity. (Lapré and VanWassenhoven). Furthermore, department quality improvements rarely translate into productivity gains for the plant as a whole.

Does that mean that ready mixed concrete producers can only hope for one-in-four productivity improvement initiatives to impact a plant’s bottom line? Fortunately, no; it is possible to design projects that have more encompassing results. The key is to take the necessary job skills and knowledge and use them to design a process improvement project. According to a study done by Michael A. Lapré at the Owen Graduate School of Management at Vanderbilt University in Nashville, TN, and Luk N. VanWassenhoven at INSEAD in Fontainebleau, France, Europe’s leading MBA program, process improvement projects in plants that produce two types of learning to implement change and produce replicable results can have a big impact on a plant’s bottom line. The first is conceptual learning, which yields the know-why or is the process of acquiring a better understanding of cause-and-effect relationships, using statistics and other scientific methods to develop a theory. The second is operational learning, which delivers know-how or the process of implementing a theory and observing positive results.

Lapré and VanWassenhoven make three key points to assure success: (1) production workers are in the best position to identify areas most in need of improvement and area plant managers typically lack the daily detail knowledge of the production process; (2) cross-functional teams formed to address production issues often fail because they lack knowledge diversity across multiple departments to generate solutions that combine know-why and know-how; and (3) companies underestimate the importance of grooming plant and project managers with rich, diverse bases of knowledge.

Bibliography:

In August 2004, NRMCA launched its inaugural Plant Manager Certification workshop with 42 people in attendance. This training was developed through a generous grant from the RMC Research Foundation. The accompanying certification exams offered were in modular form that tested competencies in five distinct areas: Product Knowledge, Safety, Operations, Environmental and Business Activities. The course will be offered again in Winter 2005 in Salt Lake City. This certification is a major part of the Vision 2010 goal to develop NRMCA ISO-type structure for levels of performance in ready mixed concrete production. For more information, contact Eileen Dickson at edickson@nrmca.org.
from too many vendors

You have enough problems running your business without having to deal with multiple software packages and vendors. Why put up with batching and dispatching systems that don’t fully integrate with your signaling and accounting packages or suffer from quality control and reporting tools that are isolated from your major systems? It’s time to escape.

Why waste your time with everyone else, when there is only one company you need to know? Command Alkon is the only single-source software solution provider that meets all the needs of your construction materials business.

Escape vendor overload. Escape from confusion. Call Command Alkon today.
Get it and get $10.00 off your next order.

NRMCA’s new publications and education catalog has the new and essential engineering, management, safety, environmental, operations and promotions information you’re looking for. If you don’t have a copy, ask for one today. And when you get it, take $10.00 off your next order of $50 or more, prior to February 15, 2005. To save, just write “$10.00 off” anywhere on the order form that you’ll find in the catalog.

Get yours today. For one or more copies, contact Jacques Jenkins at 1-888-846-7622 ext. 1165; email jenkins@nrmca.org, use the form below, or go to http://www.nrmca.org/catalog

Send me _______ copies of The NRMCA Publications and Education Catalog. Phone_________________ Fax: __________________
Name ____________________________
Organization ________________________
Address _____________________________
City ___________________________ State _______ Zip ____________
email ____________________________
Return form to Jacques Jenkins. Fax: 301-585-4219. Mail: NRMCA, 900 Spring St., Silver Spring, MD 20910. Email: jenkins@nrmca.org.
Source Code: CIF
Introduction

Concrete properties vary considerably depending upon the temperature and humidity that they have been subjected to early on in their life. The standard that dictates the procedures for making and curing test cylinders, ASTM C 31, defines two different curing conditions to be used for specific purposes.

1. **Standard curing**: This condition involves subjecting the specimens to standard temperature and humidity conditions and the strength results are primarily used for concrete acceptance and quality control.

2. **Field curing**: This condition involves subjecting the specimens to the temperature and humidity that the actual structure experiences and the strength results are primarily used for determining whether a structure is capable of being put in service and scheduling form work removal.

It becomes a problem when the engineer or a purchaser argues that concrete must be accepted based on field-cured test cylinders. The engineer may argue his case by pointing out that his concrete structure does not experience standard cured conditions and he would like it to attain the specified strength required in the structural design based on the actual “field cured” conditions that the structure experiences. On the face of it this sounds like a valid argument. The concrete producer needs to point out: 1. Strength depends substantially on the curing conditions; 2. The producer has no control over the curing conditions; 3. The producer is responsible for providing concrete of consistent strength that will be subjected to a standard curing condition as defined by ASTM C 31. This point is stressed in all industry standards, such as ASTM C 94, ACI 318 and ACI 301.

ASTM C 31 “Practice for Making and Curing Concrete Test Specimens in the Field” requires that standard cured cylinders for concrete acceptance should undergo initial curing between 60°F and 80°F for up to 48 hours after which they should be transferred to a moist room or water tank. However, in the field this may not always be practiced.

NRMCA Research Laboratory conducted two experimental programs where test cylinders were exposed to exterior conditions in summer and winter months and compared these results to standard cured specimens. In both cases, concrete cylinders prepared from a specific mixture were subjected to standard curing, field curing conditions and conditions not fully complying with standard curing requirements. The variation in the strength development in each of the conditions is shown and it is hoped that this report will support the producer’s case.

**Cold Weather Conditions (Series D 335)**

The unusually cold weather in January in Maryland prompted the NRMCA laboratory staff to undertake a simple experimental study to quantify the effect of cold temperature exposure on concrete compressive strength development. A nominal 4000-psi air-entrained concrete mixture was prepared and a total of 32 4 x 8-inch cylinders were made and cured in various conditions immediately after casting.

**Experimental Details**

The 2.5 cu. ft. concrete batch was prepared at the NRMCA Research Laboratory. The mixture had a cement content of 475 lbs/yd³ and fly ash content of 50 lbs/yd³, at
a water-cementitious materials (w/cm) ratio of 0.52. A Type A water reducer and an air entraining agent were also used.

The measured slump and air content were 4 inches and 5.9 percent, respectively. The initial concrete temperature was 71°F.

A total of 32 4x8 cylinders were cast for strength tests. Strength tests were planned for three, seven, 28 and 90 days with an average from two cylinder tests representing a strength test result.

Curing Conditions

Cylinders were covered with plastic caps and cured in the following four methods immediately after they were made:

1. **Standard curing** in the lab in accordance with ASTM C 31 – cylinders were stored in the moist room (73°F and 100% relative humidity); stripped at 24 hours
2. **Lab air-dry** – cylinders were stored in lab air (73°F and no humidity control); stripped at 24 hours and continued to be cured in lab air
3. **Outside for 48 hours, moist cured** – cylinders were placed in covered 5-gallon buckets (2 cylinders per bucket) on the lab loading dock; stripped at 48 hours and placed in the moist room (73°F and 100% relative humidity)
4. **Outside until time of test** – cylinders were placed in covered 5-gallon buckets (2 cylinders per bucket) on the lab loading dock; stripped on the earlier of the day of test or at seven days.

The average daily ambient temperature based on averages from BWI (Baltimore) and DCA (Reagan National) airports (College Park is midway) during the first 48 hours was in the range of 26 to 28°F and it was below freezing for most of the first seven days. The average daily temperature during the course of the study is indicated on the chart below.

Test Results

The compressive strength results through an age of 28 days are illustrated in the chart below and the compressive strength as a percentage of the standard cured cylinders (control) at the various test ages is summarized in the Table.

![Series D 335 Concrete Strength - Cold weather exposure](chart.png)

<table>
<thead>
<tr>
<th>Age, days</th>
<th>Control Strength, psi (1)</th>
<th>Percent of control strength at same age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1508</td>
<td>Lab Air-dry (2)</td>
</tr>
<tr>
<td>3</td>
<td>2828</td>
<td>Out-48 h, moist (3)</td>
</tr>
<tr>
<td>7</td>
<td>3852</td>
<td>Outside (4)</td>
</tr>
<tr>
<td>28</td>
<td>4745</td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>5374</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age, days</th>
<th>Control Strength, psi (1)</th>
<th>Percent of control strength at same age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1508</td>
<td>Lab Air-dry (2)</td>
</tr>
<tr>
<td>3</td>
<td>2828</td>
<td>Out-48 h, moist (3)</td>
</tr>
<tr>
<td>7</td>
<td>3852</td>
<td>Outside (4)</td>
</tr>
<tr>
<td>28</td>
<td>4745</td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>5374</td>
<td></td>
</tr>
</tbody>
</table>

**Conclusions**

1. This study demonstrates the effects of curing test specimens in cold temperatures.
2. Cylinders that were cured by air drying in the laboratory at ambient temperatures similar to the moist curing resulted in a 12 percent reduction in measured strength at 28 days, with only a 5 percent reduction at seven days. But they showed a 26 percent reduction at 90 days with the 90-day strength slightly lower than the 28-day strength.
3. Cylinders that were cured for 48 hours in sub-freezing temperatures followed by standard moist curing resulted in a 22 percent reduction in strength at 28 days. This represents a potential condition where test cylinders are not protected during the initial curing period in the field. However, by 90 days the strength reduction was only 10 percent.
4. Cylinders that were kept in external conditions for the period prior to testing, where the average ambient daily temperature varied in the range of 20 to 45°F, resulted in a reduction of strength by 34 percent at 28 days. However, by 90 days the strength reduction was only 18 percent. It should be pointed out that between 28 and 90 days the external temperature varied between 40 to 75°F.
5. Dramatic strength reductions particularly at early ages (28 days or less) are possible if the initial curing conditions of ASTM C 31 are not followed. This can be the cause for acceptable concrete to be rejected. However, in certain situations by 90 days the lower strengths from non-standard curing were not as significant.

**Hot Weather Conditions (Series D 338)**

In the summer of 2004, the NRMCA Research Laboratory undertook a simple experimental study to quantify the effect of high temperature exposure on concrete compressive strength development. Other tests conducted for supplementary evaluations were the measurement of the elastic modulus, sorptivity (a newly approved ASTM test) and rapid chloride permeability (C 1202).

A nominal 4000-psi air-entrained concrete mixture was prepared and a total of 38 4 x 8-inch cylinders were made and cured in various conditions immediately after casting.
Experimental Details

The 2.8 cu. ft. concrete batch was prepared at the NRMCA Research Laboratory. The mixture had a cement content of 400 lbs/yd³ and fly ash content of 125 lbs/yd³, at a water-cementitious materials (w/cm) ratio of 0.52. A Type A water reducer and an air entraining agent were also used.

The measured slump and air content were 6.75 inches and 5.6 percent, respectively. The initial concrete temperature was 72°F.

A total of 38 4x8 cylinders were cast. Strength tests were planned for one, three, seven, 28 and 90 days with an average from two cylinder tests representing a strength test result. Rapid chloride permeability tests in accordance with ASTM C 1202 were conducted at an age of 90 days for the standard and outside curing conditions only. Static Modulus of Elasticity tests in accordance with ASTM C 469 and sorptivity tests in accordance with the new ASTM C 1585 were also conducted. Only the strength and Rapid chloride permeability test (RCPT) results are discussed here. The sorptivity test will be discussed in greater detail in a later article.

Curing Conditions

Cylinders were covered with plastic caps and cured in the following three methods immediately after they were made:

1. **Standard curing**
2. **Outside for 48 hours, moist cured**
3. **Outside until time of test** – cylinders were placed in covered 5-gallon buckets (2 cylinders per bucket) on the lab loading dock; stripped at 24 hours.

The average daily ambient temperature based on averages from BWI (Baltimore) and DCA (Reagan National) airports (College Park is midway) during the first 48 hours was in the range of 81 to 83°F and the peak daily temperature over the first seven days was about 89°F. The average daily temperature during the course of the study is indicated on the chart below. The average daily temperature was about 10°F above the standard curing temperature even though the peak temperature ranged over 90°F on certain days.

Test Results

The compressive strength results through an age of 90 days are illustrated in the chart below and the compressive strength as a percentage of the standard cured cylinders (control) at the various test ages is summarized in the Table.

The standard cured cylinders gave an average RCPT value of 1536 coulombs, which indicates a “Low” chloride ion penetrability (ASTM C 1202), while the outside cured cylinders gave a higher RCPT value of 2475 coulombs, which indicates a “Moderate” chloride ion penetrability.

Conclusions

1. This study demonstrates the effects of curing test specimens in high temperatures.
2. Cylinders that were cured in a high temperature external environment displayed 80 percent higher one-day strength as compared to the standard cured cylinders. The low one-day strength of the standard cured cylinders is likely due to the 24 percent fly ash used in the concrete and the resulting slower strength gain in standard curing conditions.
3. Cylinders cured for 48 hours in high temperatures followed by standard moist curing resulted in a 22 percent reduction in strength at 28 days. This represents a potential condition where test cylinders are not protected during the initial curing period in the field. By 90 days the strength reduction was 16 percent.
4. Cylinders that were kept in external conditions for the entire period prior to testing, where the average ambient daily temperature varied in the range of 61 to 83°F, resulted in a reduction of strength by 16 percent at 28 days and 20 percent by 90 days. The peak daily temperatures were in excess of 90°F on some days. This does not represent the higher summer temperatures seen in southern states where the effects of non-standard initial curing in the field could have been more significant.
5. The modulus of elasticity did not vary very much in the different curing conditions.
6. The RCPT values measured were much lower for the standard cured cylinders, confirming that good curing practices substantially improve concrete durability.

<table>
<thead>
<tr>
<th>Age, days</th>
<th>Control Strength, psi (1)</th>
<th>Percent of control strength at same age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Out 48 h, moist (2)</td>
<td>Outside (3)</td>
</tr>
<tr>
<td>1</td>
<td>784</td>
<td>180%</td>
</tr>
<tr>
<td>3</td>
<td>2370</td>
<td>89%</td>
</tr>
<tr>
<td>7</td>
<td>3176</td>
<td>81%</td>
</tr>
<tr>
<td>28</td>
<td>4384</td>
<td>78%</td>
</tr>
<tr>
<td>90</td>
<td>5659</td>
<td>84%</td>
</tr>
</tbody>
</table>

![Series D338 Concrete Strength - Hot Weather Exposure](chart.png)
New Truck Mixers

A Solid Track Record

Before selling our first truck mixer directly to any ready-mix operation, Beck Industrial spent four years manufacturing exclusively for wholesale distributors. We aggressively refined our designs, punished our equipment, and evaluated the results. After years of testing, the results are simple—Beck Industrial Truck Mixers will out-perform and outlast any mixers in your fleet, guaranteed.

We’re family owned and operated; built from the ground up in Lubbock, Texas. Our slow-growth plan focuses on renovating your mixer fleet one truck at a time and redefining the industry’s standards of quality, durability, and performance. Call us today for information on putting a new Beck Truck Mixer to work for you.

Toll Free: (877) 777-BECK
www.beckindustrial.com
**Question:** What effect do the Department of Labor’s (DOL) new overtime pay rules, which went into effect on August 23, have on my company?

**Answer:** The DOL’s recent revisions to its half-century-old overtime regulations were necessary as the previous rules had become obsolete, ambiguous and a source of rampant litigation. The new rules updated the compensation standards, outdated language and the Fair Labor Standards Act (FLSA) exemption criteria to conform to the modern workforce.

Most of the basic provisions remain the same. The FLSA still requires that employees eligible for overtime compensation be paid at least the federal minimum wage for all hours worked and overtime pay at one and one-half the regular rate of pay for all hours worked over 40 in a workweek. The FLSA minimum standards may be surpassed but cannot be waived or reduced. For example, employers must comply with any federal, state or local laws establishing a higher minimum wage or a lower maximum workweek. Employers may also provide a higher wage, shorter workweek or higher overtime premium at their discretion or via a collective bargaining agreement. However, provisions contained in collective bargaining agreements cannot violate FLSA minimum standards.

Under the new rules, employees making less than $23,660 a year or $455 per week are guaranteed overtime protection regardless of the duties they perform. Employees performing office or non-manual labor who are paid $100,000 or more annually (which must include at least $455 per week paid on a salary or fee basis) are generally exempt from overtime pay requirements as long as they regularly perform at least one of the duties of an exempt executive, administrative or professional employee. Exemptions from the FLSA based on job duties are discussed in the next section.

Employees who are determined to be “exempt” from the FLSA are not subject to the minimum wage or overtime pay laws. Five categories of exemptions are pertinent to employees in the ready mixed concrete industry, including the executive, administrative, learned professional, outside sales personnel and computer employee exemptions. These exemptions apply only to “white collar” employees who meet the salary test and duty tests. They do not apply to “blue collar” workers who perform labor involving repetitive operations with their hands, physical skill and energy. Non-management, FLSA-covered employees performing skilled blue collar work in the construction industry are entitled to minimum wage and overtime pay regardless of their level of compensation.

To qualify for exempt status under any one of the FLSA exemptions, employees must meet certain tests regarding their job duties and be paid on a salary basis at a rate not less than $455 per week. Job titles alone are not sufficient to determine exempt status! An exemption cannot be applied unless an employee’s specific job duties and salary meet all the criteria set forth in the DOL regulations. To view the duty tests under each exemption category, please see NRMCA’s overtime guidance document at www.nrmca.org. Please keep in mind that you should always consult with a labor attorney before attempting to classify employees as exempt or non-exempt from the FLSA.

Despite the DOL’s improvements to the overtime pay rules, there have been efforts in Congress to overturn them. NRMCA will keep you posted on any developments on this issue as they arise. Questions regarding the new overtime regulations should be directed to NRMCA’s Kevin Voelte at 1-888-846-7622, ext.1152 or kvoelte@nrmca.org.
Your company’s reputation – and future orders – are depending on your performance today.

Buying only equipment with TMMB rating plates ensures that your equipment will perform up-to-spec time after time.

The manufacturers of the Truck Mixer Manufacturers Bureau guarantee that mixers have specified capacity, accurate water control, precise mixing speed and uniform mixing performance to ensure quality concrete is delivered that way.

In fact, in many states TMMB rated equipment is required on state jobs.

Contact us to learn more about the TMMB advantage.

Beck Industrial
Continental Mfg. Co.
London Machinery
McNeilus Companies
Oshkosh Truck Corp.
Schwing America
Summit Performance Systems
Terex Advance Mixer

Endorsed by and affiliated with:
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 written in a "what? why? how?" scheme and 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 topic 1-38. Spanish CIP Full Set 2PCIP100es – contains 20 sets of each CIP topic 1-36. ($180 members, $720 non-members); English Single Set 2PCIPS & Spanish Single Set 2PCIPses. ($20 members, $80 non-members)

2. 2PRV032 – Back the Truck Up!
Is designed to help stem the rising tide of backing accidents. The video begins with the demonstration of an effective jobsite survey focused on securing each of the seven zones identified within a truck's "Sphere of Safety." From there, the lesson moves on to providing your learners with a series of step-by-step procedures designed specifically to help our concrete delivery professionals safely do what they spend so much time doing — backing their trucks up. ($70 members, $90 non-members)

3. 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)

4. 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)

5. 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)

6. 2PETEC-CD – Concrete Field Testing Technician Training CD-ROM:
(2004 ASTM US; Version 2.2) A CD-ROM-based training tool for the ACI Concrete Field Testing Technician, Grade I. The CD, which covers all seven ASTM standards addressed by ACI’s certification, is designed to be self-paced, interactive and effective for all styles of learning. The CD includes text, a slide presentation and a video demonstration for each of the seven test procedures. Developed by eTEC engineering, training and education consultants. Visit eTEC’s Web site at www.go2etec.com. ($35 members, $35 non-members)

7. 2PCIP37 – 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)

8. 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 One 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 Two 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)

9. 2PCBT – Concrete Tool Box:
A software tool for the ready mixed industry covering basic calculations involved in concrete production, testing and construction. Includes aggregate testing, basic mixture proportioning procedure, ACI 318 strength data for submittals and acceptance on the job. Also a valuable education for quality control personnel. ($195 members, $295 non-member)

10. 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)
The new name in chemistry is LANXESS.

A brand new company that started doing business on July 1, 2004 — created from parts of two companies, Bayer Chemicals and Bayer Polymers.

LANXESS — With world class products like Bayferrox® iron oxide pigments, and the same team of professionals in technical and customer service, sales and marketing.

For more information call LANXESS at 1-888-422-9337 or visit www.US.LANXESS.com or www.Bayferrox.com and see while so much has changed, so much remains the same.

Bayferrox® is a registered trademark of Bayer AG, Germany.
Instant Steam Generator
Designed specifically for heating water and aggregates, all with the one unit.

Fuel savings up to 50%
Low carbon monoxide levels
Full bore steam in 15 seconds
No stationary engineer required
No chemical treatment of water

for More info
Call: 1-800-338-1339
or visit: www.steamengineering.ca
VehiCom Data Inc. Mission and Product Overview

• VehiCom Data Inc. is a designer and manufacturer of unique electronic signage designed to display truck numbers at concrete batch plants to facilitate the loading of trucks. The signs are designed to be used in conjunction with any computerized batch control panel and follow the job stacking screen automatically. On some sign systems manual stand-alone operation is also possible.

• VehiCom signs are unique in that emphasis is on reliability and readability. Signs are sealed against dust and dirt and utilize the latest in light emitting diode technology (LED). Four different sized digits are presently available, with fixed configurations and “design your own sign” flexibility.

• Automation of batch plant operations with significantly reduced loading times, error reduction, and vastly reduced radio usage, all result in a very fast payback for the user.

• Custom design is always a consideration, sometimes at no additional charge.

702.873.3474
P.O. Box 35106
Las Vegas, NV  89133-5106
www.vehicom.com

CONCRETE
in focus

COMPLIANCE
never looked so good.

The Knelson
Concrete Recovery System

tel: (604) 888-4015
www.concreterecovery.com
Your product will perform better with fly ash. From ready mixed to precast. From highways to structures to service and technical support to ensure you get results.

Headwaters Resources is the nation’s leading supplier of fly ash to companies.

From ready mixed to precast. From highways to structures to flowable fills.

Your product will perform better with fly ash.
index to advertisers

AD Mixtures
Axiom Italcementi Group 70
Kaufman Products, Inc. 32
LanXess 64
Master Builders, Inc. 6
SiKa Corporation 41
The Euclid Chemical Company 70

Aggregate Heating Equipment
Steam Engineering 66

Aggregate Separators
Stephens Manufacturing Co., Inc. 42

Batch Plants
Besser Co. Outside Back Cover
BMH Systems 11
Liebherr Concrete Technology Co. 70
Merts, Inc. 38
Scaletron 32
Stephens Manufacturing Co., Inc. 42

Batching/Mixing Controls
Liebherr Concrete Technology Co. 70

Blades, Mixer
Liebherr Concrete Technology Co. 70

Cement
Holcim 53

Cement Silos
Merts, Inc. 38

Chemical Cleaners
RoMix 47

Chute Closure Device
Forfam, Inc. 70

Cold Weather Concreting
T.H.E. Machine Co. 67

Communications
VehiCom Data, Inc. 67

Computer Software
Command Alkon 55
TMT Software 33

Concrete
Titan America 26

Concrete Batch Mixers
Schwing America, Inc. 5

Concrete Batch Plants
Concrete Plant Manufacturers Bureau. 29
Erie Strayer Company 49
R & S Industries 68

Concrete Colorants
Davis Colors 39

Concrete Curing/Cold Weather
T.H.E. Machine Co. 67

Concrete Fiber Reinforcement
SI Concrete Systems Inside Back Cover

Concrete Products & Accessories
CEMEX USA 34

Concrete Pumps & Placing Booms
Schwing America, Inc. 5

Concrete Reclaimers
BFK Technologies 18
Liebherr Concrete Technology Co. 70
Stephens Manufacturing Co., Inc. 42

Concrete Recovery Systems
BFK Technologies 18
Stephens Manufacturing Co., Inc. 42
The Knelson Group 67

Concrete Recyclers
Schwing America, Inc. 5
Stephens Manufacturing Co., Inc. 42

Concrete Reversing Drum Mixers
BMH Systems. 11

Concrete Slurry
Concrete Slurry Solutions 33

Construction Equipment
Liebherr Concrete Technology Co. 70
Riviera Brush Co. 65

Continuous Mixing Systems
Cemen tech. 21

Conveyors
Merts, Inc. 38
Westcon MFG Inc. THEAM conveyors. 54

Decorative Concrete
Incretec Systems, Inc. 65

Dust Collection Systems
Stephens Manufacturing Co., Inc. 42
WAM, Inc. 66

Environmental
Envro-Port, Inc. 70

Fiber Reinforcement
VM Fiber Feeder 67

Fleet Management Systems
Trimble Mobile Solutions, Inc. Inside Front Cover

Fly Ash
Headwaters Resources 68

Ground Thawing
T.H.E. Machine Co. 67

Lift Axles
Hendrickson Aux. Axle Division 20
Link Manufacturing. 70

Management Consulting
FMI Corporation. 46

Mixer Truck Cleanout
Coast 2 Coast 48

Mixer Trucks
Truck Mixer Manufacturers Bureau. 62

Mixers
Continental Mfg. Company, LTD. 36
Liebherr Concrete Technology Co. 70
London Machinery Inc. 22
Terex Advance Mixer, Inc. 44

Pneumatic Conveying
Steam Engineering 66

Portland Cement
Essroc Cement. 70

Ready Mix Plants
Liebherr Concrete Technology Co. 70
Merts, Inc. 38

Reclaimers
BFK Technologies 18

Safety Equipment/Fall Protection
Safe-T-Strap 66

Saw Blades
Soff-Cut International 16

Silos, Cement
Liebherr Concrete Technology Co. 70

Truck Mixers
Beck Industrial 60
Schwing America, Inc. 5

Truck Suspension
Watson & Chalin Manufacturing, Inc. 40

Truck Wash Chemicals
Continental Mfg. Company, LTD. 36

Trucks
Mack Trucks, Inc. 15
Peterbilt Motors Co. 3

Ventilation Systems
Stephens Manufacturing Co., Inc. 42

Volumetric Mixers
Cemen tech. 21

Water Heating Equipment
Steam Engineering 66
ADMIXTURES

Axim Italcementi Group
8282 Middlebranch Rd
Middlebranch, OH 44652
1-800-899-8795
Tel: 330-966-0444
Fax: 330-499-9275
Website: www.aximconcrete.com

Axim Italcementi Group is a full line manufacturer of chemical admixtures and allied materials used in the production of concrete. Our technologies are focused on meeting the demands of tomorrow’s construction challenges. We at AXIM have followed Italcementi in becoming “A World Class Local Business.” Visit our websites at: www.aximconcrete.com and www.scczone.com.

CHUTE CLOSURE DEVICES

Shute Shutter® by Forfam Incorporated
1642 Las Trampas
Alamo, Ca 94507-1824
Contact: Jim Bergantz, Director of Sales & Marketing
Email: sales@forfaminc.com
Web Sites: www.shuteshutter.com or www.forfaminc.com

Shute Shutter®, the fully automatic chute closure device, stops spills, concrete theft, windshield & damage claims, saves time & money & reduces insurance costs. Utilize Close & Go (trade mark) if washouts are not allowed.

CONSTRUCTION EQUIPMENT

LIEBHERR

Liebherr Concrete Technology Co.
P.O. Drawer O
Newport News, VA 23605
Tel: (757) 928-8547
Fax: (757) 928-2469
Toll Free: 866-879-6312
E-mail: info@lct.liebherr.com
Website: www.liebherr.com

Liebherr...Experience the Difference. Concrete Technology...that makes your business more productive and profitable. Liebherr offers product lines with superior mixing abilities. We pride ourselves in building equipment that utilizes modern manufacturing methods with durability and quality in mind. Product lines include: Concrete Reclaimers & Loading Buffers - Portable, Mobile & Stationary Concrete Batch Plants - Custom Designed Concrete Batch Plants - LTB Truck Conveyors - Twin Shaft and Ring Pan Stationary Mixers. Experiencing the difference in our products makes Liebherr equipment the logical choice for today’s producer. Visit our website at: www.liebherr.com.

ENVIRONMENTAL

Enviro-Port, Inc.
10963 Dunbarton Road P.O. Box 175
Gratiot, WI 53541
Tel: (800) 356-8106
Fax: (608) 922-3370
E-mail: enviropt@mhtc.net
Website: www.enviro-port.com

ENVIRO-PORT offers 100% ready-mix reclamation for the Ready-Mix and Precast producers. Enviro-Port will help manage your plant’s process and storm water. New is our add-on system for producers that have existing reclaimers and/or pit systems that desire 100% reclamation with gray water rebatching. Visit our website at: www.enviro-port.com.

LIFT AXLES

Link Manufacturing
223 15th Street NE
Sioux Center, IA 51250
Tel: (712) 722-4874
Fax: (712) 722-4876
Website: www.linkmfg.com

Link’s Duralift self steering liftable suspensions and DuraMax nonsteer liftable suspensions are both gaining attention in the industry with their durability. The 100psi steel, bushing location, and improved airspring geometry keep the Link units working on the job and low in maintenance costs.

PORTLAND CEMENT

Essroc Cement
3251 Bath Pike
Nazareth, PA 18064
Tel: (610) 837-3717
Fax: (610) 837-2563
E-mail: paul.bat@essroc.com
Website: www.essroc.com

ESSROC’s ancestor companies pioneered the development of portland cement in North America more than 130 years ago. The company offers a full line of bulk Portland cements and package Portland, Portland/Lime, masonry cements, and colored masonry cements to customers throughout much of the Midwest, Southeast and Northeast United States, Eastern Canada and Puerto Rico. Visit our website at: www.essroc.com

American Heart Association

Volunteer.

BE A GOOD NEIGHBOR
Introducing Novomesh™ HPP 2.0. The new all-synthetic macro blend for secondary concrete reinforcement that’s tough enough for commercial applications. Each batch of patented synthetic fibers arrives at the job site pre-mixed into the concrete, making it easier than ever to help increase concrete toughness, prevent cracks, resist impact shattering and reduce water migration. So even though new Novomesh™ HPP 2.0 is incredibly tough, the decision to use it is anything but.
Quality & Service
Besser is committed to providing ready-mix producers with the quality and service you insist on.

Commitment to You!

• Highly productive, durable, profit-driven ready-mix batch plants
  • Dedicated ready-mix project team
  • Customer service and support when you need it
  • Prompt parts delivery and knowledgeable service
  • Nearly 50 years of ready-mix batching experience

Besser offers a wide array of plants that can be tailored to fit your exact specifications – all backed by a management team committed to fulfilling your needs for parts, service and support after the sale.