



A Bad Test is Worse Than No Test at All

A Message from the 2011 ACI Nebraska Chapter President



Michael Gerdes

ACI Nebraska President

I'm going to start off with stating that in pondering topics for this newsletter edition, I was struggling with ideas. Anyway, I stumbled upon a topic that is near and dear to my heart. I wish to present information on accreditation of firms performing Quality Control (QC) and or Quality Assurance (QA) testing.

The American Concrete Institute (ACI) and its numerous programs for technician training and certification are certainly premier programs directed at the individual. What about the agency, engineering firm, testing company, or production facility's accreditation to perform such testing? In addition to requirements for testing technicians to be certified; the entity conducting QC and or QA testing should be accredited. In the case of an entity, the term accreditation is commonly used. Aggregate producers, cement producers and concrete producers can also become accredited to in-house quality

control perform testing.

Why seek/employ only accredited laboratories? Accredited laboratories have demonstrated during onsite inspections that their testing services conform to specific national and international standards. Accreditation increases customer's confidence in that procedures utilized meet standards. Accredited laboratories are subjected to vigorous on-site, third party assessments. During these assessments, each test method for which accreditation is being pursued must be demonstrated in its entirety by the laboratory's staff and the

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ac • cred • i • ta • tion (noun)



1) recognized as maintaining standards that conform to a minimum standard

2) provided with credentials of recognized excellence



Roncalli Catholic High School Concrete Whitetopping

By Jereme Montgomery

ACI-NE Vice President, NC&AA Executive Director

June, 2011-- In cooperation with ACI-NE, NC&AA, and NCPA, the concrete industry hosted a site tour at Roncalli Catholic High School in Omaha, Ne. to promote concrete overlays and concrete durability. Roncalli whitetopping parking lot consists of almost 90,000 sf of an unbonded 5 inch concrete over asphalt.

Concrete overlays are a rehabilitation technique for providing old pavements with a strong, long-life, low-maintenance

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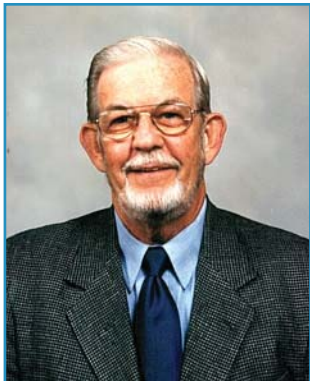
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testing apparatus associated with each test is evaluated by the assessor. The assessment also includes a review of the laboratory's quality management system, including records of technician training and competency evaluations, and equipment calibrations.

Several agencies can perform laboratory assessments and provide accreditation. Some of the most often utilized national agencies are the American Association of State Highway and Transportation Officials (AASHTO) Material Reference Laboratory (AMRL), Cement and Concrete Reference Laboratory (CCRL), and the American Association for Laboratory Accreditation (A2LA). Accreditation typically focuses on three areas being: (1) regular onsite observations and assessments of the laboratory and staff, (2) participation in reference (proficiency) sample test programs and (3) having and maintaining a detailed laboratory quality management system.

Accredited laboratories receive regularly scheduled on-site assessments and are required to participate in applicable proficiency sample programs. Nonconformities noted on assessment reports and proficiency sample reports must be resolved in a timely manner. Additionally, laboratories that receive low ratings for proficiency sample testing are required to conduct a root cause analysis to determine the reason(s) for the low ratings.

If your company conducts materials testing on aggregates, cements, and concrete mixtures, your company may wish to consider participation in a proficiency or reference sample program at a minimum. The AMRL, CCRL and A2LA programs offer stand alone proficiency samples programs. Your company would conduct the applicable test methods on the proficiency samples and submit your data for statistical analysis.

A summary statistical analysis report issued by the agency includes the total number of participating laboratories, averages for each testing parameter, standard deviations, and your laboratory's ratings to compare to all other participating laboratories, and repeatability results. Charts are often available to track laboratory proficiency sample testing results over time. Having your own results to compare to hundreds of other entities is beneficial in understanding the data reported by your company.

It is relatively common that AMRL, CCRL and A2LA accreditation and associated testing equipment calibrations will be reviewed by the individual state Departments of Transportation (DOT's), Department of Roads, Federal Highway Administration (FHWA), or other agencies that required participation in these programs such as the Army Corps of Engineers (USACE).

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Executive Secretary's Report

R. T. DeLorm

“Our Chapters play a critical role in recruitment, through monthly meetings, hot topic speakers, award programs and social events.”

In the last issue of the Nebraska Chapter Newsletter our President, Michael Gerdes noted that “A challenge for the Chapter is bringing in the next generation of members and volunteers. In my role as President over the next year, a goal will be to increase membership with a focus on participation from a younger generation.” In the June issue of *Concrete International*, our New International President, Kenneth C. Hover, wrote in his PRESIDENT’S MEMO article the following:

“ACI is always on the lookout for new members to not only share the load but also to bring new ideas, experiences, energy and motivation to the work of the Institute.” Membership and leadership in all of the progressive groups within the Institute are frequently refreshed whether we’re talking about committees, task groups, the Board of Direction, the Executive Committee or Chapters. So, where does the “new blood” come from?

Some folks meet us because they’ve read or heard about one of our conventions coming to town. Others connect through the certification program, face-to-face seminars, or online educational programs. Those with a story to tell or an article to write see us as a forum for displaying and transferring ideas. Others come to meetings to hear the stories, to see where our industry is headed, catch the late-breaking news, or to acquire our publications to read the articles.

To us insiders and veterans, ACI is a wonderful, rewarding community--we listen, we speak, we argue, we relish our arguments as well as our resolutions, we learn and we enjoy our social events and our camaraderie. Most of us wouldn’t have it any other way. But to an outsider looking in, quite frankly, it can appear overwhelming. So, whatever our role in ACI, let’s help the next wave of new folks make (and enjoy) their “first Contact” with ACI.

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How can we avoid a bad test (an improperly performed test)? Do everything in our power to ensure both the technicians and the laboratories employed have achieved the required individual technical certifications and laboratory accreditations.

Participation in technician training programs such as those offered by the American Concrete Institute (ACI) and laboratory accreditations offered by a variety of agencies provide the fundamental base for proper testing methodologies.

While it is difficult to present a full prospective of laboratory accreditation, I hope that this article provides some insights into laboratory accreditation. Links are provided below for the agencies mentioned and for conducting searches for accredited laboratories. Online directories of accredited laboratories generally include: laboratory name, address, contact information, and accredited test methods.

To sum it up . . .

**A BAD TEST IS FAR WORSE
THAN NO TEST AT ALL**

Links

Cement and Concrete Reference Laboratory (CCRL):
<http://www.ccrl.us/>

AASHTO Materials Reference Laboratory (AMRL):
<http://www.amrl.net>

American Association for Laboratory Accreditation (A2LA):
<http://www.a2la.org>

Accredited Lab Search

AASHTO AMRL:
<http://www.amrl.net/AmrISitefinity/default/aap/r18labs.aspx>

A2LA:
<http://www.a2la.org/dirsearchnew/newsearch.cfm>

Program Committee Report

Tim Hegeholz

This year your chapter program committee is focusing on environmental issues, new products and rehabilitation strategies. We have had one breakfast seminar recently that brought us to date on the potential fly ash issues as they affect us here and on a national level. This seminar was very well attended and a number of the attendees commented on how appropriate this information was.

In March a program and onsite demonstration was held regarding cellular concrete. This is a promising new application in the concrete world for a variety of applications. Our next breakfast program will target a new product for concrete. This program will be presented by Dean Craft of Barrier – 1. We may have had this program before this article is published.

Later this year we are working on having some speakers come to us on rehabilitation work. It has been some time since we have had a local member and contractor, **Tim McGill** present to us. Keep your eyes peeled for this opportunity to bring a friend who needs some repair or a contractor who is in the business.

We are looking for more ideas so please let me know of something you feel would be beneficial for a chapter breakfast meeting.

Technical Committee Report

Mike Willman

The 2010 - 2011 ACI training season was completed April 21, 2011 in Kearney, NE.

The ACI Nebraska Chapter sponsored six ACI Field Testing Technician Grade I Certification classes, with 172 examinees, and 155 certified. Two ACI Strength testing class with 28 examinees and 25 certified, and one Flatwork Finisher class with 14 examinees and 13 certified.

ACI certifications are important to the people in the concrete industry. On behalf of the ACI Nebraska Chapter, we are pleased to be able to administer this program in cooperation with NC&AA and NDOR. The ACI training program continues to be cost effective and a quality program due to the local ready mix producers and the volunteer support.

On behalf of the ACI Nebraska Chapter, I would like to thank the following for all the work they do to make this program a success: **Rochelle Hitz, Leon Schaefer,** and **Jereme Montgomery**, Nebraska Concrete & Aggregates Association; **Jim Musilek, Steve Weidenhammer, Larry Schmidt, Bob Irwin, Jerry Woods;** ACI Nebraska Chapter and Nebraska Department of Roads volunteers.

ACI Nebraska Chapter Welcomes Two New Board Members



Kevin Piper

Kevin Piper attended Creighton University. Kevin has been involved in the concrete industry for the past 35 years, first as a laborer on a paving crew, then as a batch plant operator.

Later, he became the General Manager and Vice President of the same concrete company. That company was purchased by Paulsen, inc. in 1998.

Kevin is currently employed by Paulsen, Inc. as assistant Ready Mix Concrete Division Manager. Kevin lives in North Platte with his wife, Julie. They have three children: Brett, Jared, and Kyleigh, and one grandchild, Araya.

Dick O'Dell

Dick O'Dell is with O'Dell Concrete Pumping Service in Seward, NE



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pavement structure. These procedures were developed through 30 years of experience and research in overlaying airport runways, heavy-duty highway pavements, light-duty roads and streets and yes... even parking lots.

Special thanks to Roncalli Catholic High School, Daedalus Construction, Consolidated Concrete and LEO A Daly for allowing the industry to promote this successful and durable concrete whitetopping project.

Design, Placement & Production Considerations



High Slump...Low Water mix

The maximum water to cement ratio allowed for exterior concrete in our region is 0.45 (pounds of water divided by the pounds of cement, w/c). Commercial Concrete Contractors like to place concrete around a 5 inch slump. Combine the effects of Mother Nature (temperature, low humidity, wind) with meeting the requirements of the specifications (strength, maximum w/c, proper air) may create some challenges. There are two ways of achieving and/or maintaining workability: adding water or adding chemical admixtures. This concrete contractor does not allow water to be added on site. Instead, this contractor purchases mid-range water reducer to be placed on the finishers trucks to be used when workability is lost due to high temperatures. This not only ensures the mix to be placed to meet maximum w/c the industry requires, but also to ensure that the concrete is placed at the "lowest" possible w/c.

Turning a 6 sack mix (3500 psi) into a 4000 psi mix

A typical 6 sack mix (564 pounds of cement) will yield a minimum compressive strength (f'c) of 3500 psi. Strength of concrete has several contributors: cement content, aggregate content, and water content. Keeping cement and aggregate content constant and by lowering the water content...the strength of the concrete increases. The concrete placed at Roncalli, with a maximum water cement ratio of 0.45 and 6 sacks of cement is currently averaging over 4500 psi. These higher than average strengths are

directly correlated to the tight matrix in the paste (water plus cement) by again...placing the concrete at the "lowest" possible w/c.

Placement with ALL WOODEN TOOLS

To some of you old timers, this is nothing new. But for some of us new schoolers, this is very interesting. I have heard throughout my entire concrete career that wooden tools are ideal when placing exterior concrete, but rarely seen it done (myself included). The proper use of a bullfloat is to immediately float after strikeoff, and before excess water in the concrete begins to rise (bleed). Minimal bullfloating is all that is needed because magnesium tools efficiently bring cement paste to the surface. Excessive bullfloating or used with too much pitch may cause concrete surfaces to be sealed (closed or densified), which traps bleed water and sets the stage for surface problems. I am fortunate to have been reintroduced to wood concrete tools. Wood hand floats and wood bullfloats cannot accidentally seal concrete surfaces. In other words, wood tools keep concrete surfaces open. Keeping surfaces open is important for exterior concrete performance.

60 foot wide strips to maintain control of the pour

The contractor chose not to exceed pour widths of 60 foot for **three** reasons: to minimize the risk of cold joints, **minimize effects due to wind**, and to be able to reach and finish the concrete properly. When concrete pours get too wide (over 50-60 ft) the contractors cannot effectively bullfloat the slab (perpendicular to strikeoff) or effectively cure the slab (unless there is a 60 ft manlift on site). Keeping pour widths to a maximum helps the contractor control the pour and ensures finishing practices needed for durability. **The faster the concrete is placed, the faster the contractor can start curing operations to minimize moisture lost at the surface.**

10 ft x 10 ft joint spacing to control random cracking and internal stress

For typical unbounded concrete overlays the joint widths should not exceed 24 times the thickness ($24 \times 5" = 10$ feet). This is maximum for an overlay due to the internal stress of the slab caused by shrinkage and curling. By keeping the joint spacing to a minimum helps reduce these effects.

Control Joints protected by Waterproofing agents

For additional protection of the control joints the contractor installed a waterproofing agent (Aquapel) on 6 inches each side of the joint. This waterproofer acts like barrier to not allow moisture to soak in the concrete at the joint locations...similar to sealing your wood deck.



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Progress through Knowledge



<http://www.concrete.org/MEMBERS/memb.htm>

ACI has just released a short video on membership benefits. If you're not a member of ACI already, consider watching this video for a description of member benefits.

Even if you are already a member, the video is a great resource to brush up on all the benefits and opportunities your membership comes with.

Don't Miss It!

ACI's Golf Outing
has been rescheduled for

**Monday,
July 25, 2011**

Beatrice Country Club
11:30 am shotgun start

