



# THE TEST REPORT

A Newsletter of the California Council of Testing and Inspection Agencies

## PRESIDENT'S CORNER –

By David Chippero

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A great time was had by all the members who attended this year's ABM at Bally's Hotel and Casino in Las Vegas, NV. The weekend started off with a cocktail reception on Friday night where the members and their significant others were able to relax and catch up on old times.

On Saturday morning we had our annual business meeting with a very interesting



presentation from Richard Sallee with Intelli Rock. Richard's company has developed a new technology to determine concrete strength by using thermo couplers inserted into freshly mixed concrete. The thermo couplers log the time and temperature of the concrete and are plotted onto a graph. The strength can then be determined based on similar temperatures from a previously performed trial batch where concrete compression tests are correlated with temperature and time. This technology would eliminate the need and expense of a portable compression machine while working on a high-way or time critical project. The meeting finished with much dis-

cussion over the current status of the LEA program. On Saturday night the ABM concluded with our annual awards dinner. I would like to thank the outgoing board members for all their hard work and support; Bill Cale, Corey Dare, Jim Backman, Terry Egland, Gordon Woodard, and Greg Smith. I would also like to welcome the new 2005 board members as we prepare to lead CCTIA into the future; Bill Cale, Elizabeth Levi, Jim Backman, Greg Ruf, Corey Dare, and Gordon Woodard.

2004 was a very tough year for many companies in the Testing and Inspection industry. Business was down and many state and federally funded projects fell victim to budget cuts. However I believe that 2005 will be a much better year for our industry. With the presidential elections now behind us I believe our economy will begin to stabilize. This will allow businesses in the private and public sector as well as consumers to feel comfortable spending some of their disposable income once again. I see an increase in school and hospital projects, private sector work on the rise and a new housing market that continues to grow despite all expert opinions to the contrary.

2005 will also present some major issues for our industry with the disbandment of the Special Inspection Committee and the need to comply with the new LEA program. That is why CCTIA plays such an important role. With our membership base and expertise within the organization we should be able to help in finding solutions to solve these problems. However we are only as good as the participation that we receive from our members. That is why I am making my goal for the 2005 year to increase our membership and the level of participation that we receive on each sub-committee. While I would like to offer my sincerest thank you to the members who routinely contribute on a regular basis. (Terry, Miki, Cliff, Jim, Issam, Dan, Elizabeth, Bill, Chip) I would ask that we have other members step up and lend a hand to these committee chairs. I recently sent out a survey to our members. I would ask that you take some time to think about what you would like to see CCTIA accomplish and return the form back to me. We are going to use these member opinions to restructure our current com-

## SPELLERBERG New Manager of CCRL

By Terry Egland

Peter Spellerberg will replace Jim Pielert as manager of Cement and Concrete Reference Laboratory (CCRL), a research associate program under the sponsorship of ASTM. Peter will be an employee of AASHTO and his responsibilities will include AASHTO Materials Reference Laboratory (AMRL). This management arrangement is based on a memorandum of agreement between ASTM & AASHTO.

CCRL, which has been based at NIST since 1929, operates laboratory inspection and proficiency sample programs that are used by more than 1,500 laboratories worldwide.



Peter Spellerberg has replaced the retiring Jim Pielert as manager of CCRL

We're on the Web!  
<http://www.cctia.org>

## Establishing Concrete Strengths with CORES Tests at 85%

By Terry Egland

**Q:** I'm investigating an older concrete building and would like to use ACI 318 Section 5.6.5 to confirm the existing concrete strengths. Can you outline a procedure for specifying the work and explain the rule of 85%?

**A:** A nondestructive test method, such as probe penetration, impact hammer or ultrasonic pulse velocity may be useful in surveying structural members for areas of lower strength concrete. From this preliminary view point use ASTM C823-00 "Standard Practice for Examination and Sampling of Hardened Concrete on Construction" to formulate specific areas of investigation. The selected areas then can be specified for investigation for concrete strength according to ASTM C42-04 "Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete". Section 3.2

States "Generally, test specimens are obtained when doubt exists about the in-place concrete quality" and "use of this method is to provide strength information on older structures."

According to International Building Code IBC Section 1905.6.5.2, three cores will be taken for each strength test. And Section 1905.6.5.4 states, "the average of three cores is equal to at least 85% of  $f'_c$ ".

The rule of 85% can be best explained by ASTM C42-04 Section 3.5 "There is no universal relationship between the compressive strength of a core and the corresponding compressive strength of standard-cured molded cylinders. The relationship is affected by many factors such as the strength level of the concrete, the in-place temperature and moisture history, and the strength gain characteristics of the concrete. Historically, it has been assumed that core strengths are generally 85 % of the corresponding standard-cured cylinder strengths, but this is not applicable to all situations."

The commentary of ACI 318 Section R5.6.5 also states "Core tests having an average of 85% of the specified strengths are realistic. To expect core tests to be equal to  $f'_c$  is not realistic, since differences in the size of specimens, conditions of obtaining samples, and procedures for curing, do not permit equal values to be obtained."

**NOTE:** According to ACI 214.4R-03 "Guide for Obtaining Cores & Interpreting Compressive Strength Results" the preceding method is NOT an option when evaluating for structural capacity

For further information ASTM references Neville, A., "Core Tests: Easy to perform, Not easy to Interpret," Concrete International, Vol.23 No. 11 November 2001, pp. 59-68.

## One Era Ends and a New One Begins

By Michelle Craig, (DCI, President)

After more than 20 years of operation, the Tri-Chapter Special Inspection Committee (SIC) suspended operations in February 2005. This was prompted by a lawsuit filed against the East Bay, Peninsula and Monterey Bay Chapters of ICC by a firm that was unsuccessful in its application for SIC recognition. At the request of the Chapters, SIC and an ad hoc committee comprised of Chapter representatives began researching alternate programs to fill the void.

The International Accreditation Service (IAS), represented by Chuck Ramani, presented its new IBC Special Inspection Agency accreditation program, AC291, in January of this year. This program is just getting off the ground, with its first round of audits occurring in May in Las Vegas, Nevada. Feedback from participating agencies has been mixed, with many firms complaining of overly strict requirements and high fees.

The Division of the State Architect (DSA), represented by Eric France and Jeff Enzler, presented the LEA program in February. The jurisdictions present noted some concerns that the program did not deal sufficiently with special inspector experience, inspector certifications, and its use of a "different" code.

At a joint meeting held in March, local jurisdictions and CCTIA members met for additional dialogue. The concerns and needs of local building officials were discussed at length, in addition to the pros and cons of the IAS and DSA accreditations. From these comments, CCTIA developed an outline for a hybrid program, tentatively named "Local Jurisdiction/CCTIA Competency Advisory Program" (CAP), that was comprised of three parts. The first would require agency accreditation by IAS, DSA or other nationally recognized program acceptable to local jurisdictions. The second would require a signed and stamped statement from the agency's responsible engineer, similar to the one included in the old SIC program. The

third and final part would require identification and certification of special inspection personnel in compliance with the CCTIA guidelines. The joint advisory committee overseeing the program would consist of six local jurisdiction representatives and three CCTIA industry reps.

All three proposals were presented for discussion and action at the annual Tri-Chapter meeting held June 3rd in Santa Cruz. With such an important issue on the agenda for discussion, it was no surprise the meeting was sold out in advance with more than eighty people in attendance. Keyvan Irannejad, Chief Building for the City of Milpitas, made a motion for the Tri-Chapters to adopt the IAS accreditation program as a sole source. After much debate and an amendment to allow eighteen months to put the program in place, the motion was defeated – to the intense relief of the industry firms present.

A second motion, presented by William Schock, Chief Building Official for the City of San Leandro, directed the SIC to bring a recommendation back to the Chapters within ninety days, and authorized the Chapters to fund the committee to obtain legal counsel to assist in its evaluations. This motion was amended to direct the SIC to include multiple accreditation programs in its recommendation, not a sole source accreditation. The second motion passed by a comfortable margin, thereby ending an era of the SIC Recognition Program, and opening the door for a new era for our industry.

CCTIA will continue to work with the SIC and the local ICC Chapters to find an acceptable alternative. It is clear that some form of accreditation will be a part of the new program. Also, the continuation of the CCTIA experience and certification guidelines will carry a predominate role. What remains to be seen is how much impact we can continue to have on the restrictions and regulations being imposed on our industry. This new era will greatly impact the way each and every one of us conducts business in the Greater Bay Area!



## ASTM Work Item Summary

By Terry Eglund

WK 6803, 7038 & 7039 Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation  
C1077-05

WK 6803, As I mentioned in the last issue it was the consensus of the subcommittee to ballot the removal of reference to other agencies ( ie. CCRL, NVLAP....) rather than review requests from additional agencies that wish to be included. Therefore the following is being balloted:

11.3 The laboratory shall (1) report deficiency corrections to the laboratory's accrediting body who will issue a certificate of accreditation when their requirements are satisfied, or (2) if an inspection service is used, supplement copies of the final report with a statement of corrective actions taken signed by the laboratory's professional engineer.

### 3. Terminology

#### 3.1 Definitions:

3.1.1 evaluation authority—an independent entity, apart from the organization being evaluated, that can provide an unbiased evaluation of that organization. The entity must have the capability to assess the professional and technical activities of concrete and concrete aggregate testing laboratories.

3.1.1.1 Discussion—Two acceptable methods of evaluation are inspection and accreditation. A laboratory inspection is an evaluation of equipment and procedures based on the Test Methods and Procedure section, along with a review of the quality system. An inspection or other assessment report as a basis for issuing a certificate of accreditation. The assessment and the laboratory's response to any deficiencies found during the inspection are reviewed. A certificate is issued when all deficiencies are corrected. The selection of an evaluation authority is usually made by the organization being evaluated.

WK 7038 It is proposed to delete ASTM C801 Standard Test Method

for Determining the Mechanical Properties of Hardened Concrete Under Triaxial Loads (Withdrawn 2004) from the list of optional test methods.

WK 7039 The original section (10.1.2) requiring participation in a proficiency sample program (PSP) did not include all programs available. Rather than try to maintain a list of acceptable programs the ballot lists criteria that must be met when a laboratory is selecting a program.

10.1.1.5 Participation in proficiency sample programs (PSP). The laboratory shall participate in concrete or aggregate proficiency sample program or both depending on the scope of testing performed by the laboratory. The PSP used must meet the following criteria: (1) include a minimum of 30 participants, (2) issue rating(s) for the test method(s) covered, (3) cover one or more of the test methods listed in the Required Test Methods and Practices Section, (4) be independent of the participating laboratories, (5) distribute samples at least once annually, and (6) maintain a record of all sample test results from participants for a minimum of 3 years.

9.2.7 The laboratory shall retain results of participation in proficiency sample programs, including data sheets, summary reports and, if low proficiency sample ratings are received, a record of the laboratory's investigation into the reason for the low ratings and corrective action taken.

10.1.2 The laboratory shall establish procedures for responding to low proficiency sample programs ratings. Ratings are considered to be low if the result is beyond two standard deviations from the grand average on the final report.

Contact Subcommittee C09.98 for comment.

## Proposed Changes to the Structural Steel and Welding Special Inspector Exam

By Clifford N. Craig, (DCI-VP Tech Operations)

The ICC Structural Steel and Welding Special Inspector Exam Development Committee (SS&WSI EDC) met last August and proposed the SS&W exam be split into two exams, a Structural Steel & Bolting exam and a Structural Welding exam. The EDC is concerned that the current exam does not adequately assess a candidate's ability to evaluate welds. These recommendations were reviewed and approved by the Board of International Professional Standards (BIPS) and return to SSD&WSI EDC for implementation. The EDC is a technical advisory committee and may only make recommendations which must then be reviewed and approved by BIPS.

The benefits noted include:

Allowing building officials to better evaluate the scope of structural certifications.

Encourage agencies, firms and entities which, currently only recognize AWS certification to accept ICC certifications for welding inspection (i.e., Caltrans, FEMA 353, DSA)

Provides a potential format for interaction with AWS, which is currently finalizing development of a Certified Structural Steel Inspector Exam.

The development cost of the additional exam should be minimal as it

is well within the scope of the existing EDC. The maintenance of the exam would be accomplished by the same committee.

Some benefits include marketing an exam that is significantly less expensive than the AWS CWI with a wider acceptance by building officials, inspection and testing companies and other governmental and private agencies. The program will take advantage of not only the existing market, but expand into a new one that is rapidly developing across the nation as the IBC is adopted and more special inspection programs are developed.

The EDC met in Las Vegas in April and began the task of developing the two exams. It was agreed that anyone holding a current ICC SS&WSI certification would be grandfathered into the new certifications. The Structural Steel and Bolting Special Inspector (SS&BSI) exam will concentrate on the steel materials, code, plan reading, and bolting. The Structural Welding Special Inspector (SWSI) exam will be expanded to contain more welding technology, including use of photos and sketches to determine the candidate's ability to determine weld quality and workmanship.



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#### Current Members

Applied Materials & Engineering, INC.	Earth Systems Consultants No. CA	Raney Geotechnical
BSK & Associates	Engeo, INC.	Signet Testing Laboratories
BTC Laboratories	Fugro West, INC.	Southern CA Soil & Testing, INC.
Blackburn Consulting	Geocon Consultants INC.	Terraresearch, INC.
Capitol Engineering Laboratories	Holdrege & Kull	Testing Engineers, INC.
Carlton Engineering, INC.	Inspection Consultants, INC.	Testing Engineers-San Diego, INC.
Consolidated Engineering Laboratories	Kleinfelder, INC.	Twining Laboratories of Southern CA
Construction Materials Testing, INC.	Krazan & Associates, INC.	URS/D & M Consulting Engineers
Construction Testing and Engineering, INC.	Matriscope Engineering Laboratories INC.	Youngdahl & Associates, INC.
Construction Testing Services	Professional Service Industries, INC.	
Dynamic Consultants, INC.	RES Engineers, INC.	

## IAS

By Terry Egland

"International Accreditation Service (IAS) recently launched a program to accredit agencies involved in conducting Special Inspections under Chapter 17 of the International Building Code (IBC).

The IAS program is the first of its type in the United States to provide services to building jurisdictions that involve actual site visits to determine the competency of special inspectors and to determine if proper inspection protocol is being followed. The program is a cooperative effort between IAS and building departments who desire to have a formal approval process for special inspection agencies that work in their jurisdictions.

The first meeting of the newly established IAS Technical Advisory Council (TAC) for Inspection Agencies took place in Las Vegas on April 7, 2005. The ten-member council appointed by the IAS board of directors, includes building officials Earl Russell of Las Vegas and Keyvan Irannejad of Milpitas, John Chrysler from Masonry Inst., Terry Egland (Testing Engineers, Inc.), Tom Ginsbach (Northwest Testing), Randy Webb (PSI), Bill Taylor (GeoTek), Willy Fitzjohn (Constr. Inspection Training) and Chuck Ramani of IAS. Items discussed included the new IAS special inspection agency program, technical checklists for on-site assessments, issues related to hiring, training and monitoring of inspectors, steps to maintain an adequate assessor pool for IAS to effectively manage the program, and sampling

techniques for initial and reassessments of special inspection agencies.

During the week of April 4, 2005, IAS staff, together with a team of technical experts in concrete, masonry, fireproofing, soils and foundations, structural steel welding, non-destructive testing and high-strength bolting, conducted the first round of assessments of agencies that perform special inspections for the City of Las Vegas. Starting in July 2005 all agencies working in the city of Las Vegas is mandated to be IAS accredited.

The assessments consisted of visits to the offices of each applicant organization to conduct interviews with management and key personnel, to review inspection records and to verify the training and qualifications of inspection staff. Following the office visit, IAS technical assessors accompanied inspectors from each agency to actual construction sites to observe their inspection practices and to report on their findings.

IAS intends on working with the building departments and the special inspection agencies to raise the level of inspection knowledge and expertise and to ensure that special inspections are being carried out in accordance with the requirements of the IBC.

## Notes and Footnotes In ASTM Standards, Mandatory or Not?

By Terry Egland

**Q:** We've just had a laboratory evaluation and one of the test methods examined was ASTM C39. As a footnote to our evaluation they noted that the compression-testing machine had bearing blocks that were slightly softer than the 55 HRC mentioned in NOTE 4 of C 39. How do we handle this in the future without the cost of hardness testing?

**A:** Rather than addressing the subject of hardness and what might be a reasonable tolerance lets discuss the point of authority that the evaluator is quoting. According to an ASTM document "Form and Style for ASTM Standards" Section A27.1 "Notes in the text shall NOT include mandatory requirements. Notes are intended to set explanatory material apart from the text itself, either for emphasis or for

offering informative suggestions not properly part of the standard." Therefore I would suggest that the Subcommittee C09.61 on "Testing Concrete for Strength" feels that a comment on hardness is appropriate but cuts short of mandatory language. The subcommittee has recommended a hardness number of 55HRC. A slight difference from the recommended would not be a violation of the intent of C39 but a reasonable tolerance is not given.

The same document mentioned above also discusses Footnotes in Section A26.1. "Footnotes referenced in the text are intended ONLY for reference and shall never include any information or instructions necessary for the proper application of the method. Table footnotes are a part of the table." Therefore again we see that no mandatory language should be outside of the main text of the document.