LETTERS TO THE EDITOR

Precast Concrete Transforms the University of Oregon’s Autzen Stadium

The cover story on Autzen Stadium mentioned, but failed to give credit at the end of the article, to Concrete Technology Corporation in Tacoma for producing a portion of the lower deck beams. (See article on “Precast Concrete Transforms the University of Oregon’s Autzen Stadium” in the May-June 2004 PCI JOURNAL.)

As frequently is the case in our business, delays in other projects due to the “engineering bottleneck” caused our production facilities to be tied up, impacting the schedule on some of Autzen’s precast beams.

We called upon a fellow precaster to help us out and they had room in their schedule to get this portion of the contract completed. This is a prime example of how producers, by associating with each other through PCI, can possibly overcome capacity problems. Also, the owner was assured through the PCI Certification Program that the quality coming from another PCI producer would be the same as our quality.

Pat Hynes, General Manager
Morse Bros.
Harrisburg, Oregon

History of Exposed Aggregate (Mo-Sai) Architectural Precast Concrete

I was very impressed with Sidney Freedman’s article on the history of exposed aggregate in the May-June 2004 PCI JOURNAL.

When I joined Olympian Stone as vice president in 1963, the Mo-Sai Institute was at its peak. I had the opportunity to talk with Leo Swartz, president of Olympian, and with most of the original founders of the Institute. For several years, I also visited most of the Mo-Sai plants during their production meetings. Leo started Olympian in 1922 and based his entry into the business on the fact that after World War I, there was a shortage of cut stone workers.

After World War II, the industry started to produce larger panels. This was based on the availability of caulking material that allowed more expansion and contraction, while staying watertight.

There were a few techniques used that differed somewhat from the article’s description of the process:

1. The retarder called “jamican” was a combination of molasses and other products.
2. The mesh was held in position with wooden headers attached to the Mo-Sai clips.
3. After the facing was in place, the grid tamper, made of 3/8 in. smooth bar, was used to ensure that the flat side of the aggregate was flat against the form. This was a fairly low frequency vibrator. All of this equipment was made in-house. I do not believe there was a commercial supplier at that time.

Most of the panels were stripped at 18 to 20 hours and water curing continued for seven days.

I did not see a belt sander used in any plant at that time. The brush-out was always done from the edge inwards, never outwards. This prevented the edge aggregate from raveling off.

Hard spots and too deep a cut were common problems because the retarder was a crude approach to the problem.

The panels were stored before the final acid wash. This was done as the panels were loaded to remove any dust on the surface.

The typical mix was 15:3:5, based on volume. The 15 was the coarse aggregate, the 3 was sand, and the 5 was cement. The cement was generally white and premixed with the dry color in a spice mixer. This was then rebagged for use.

I saw no processes that involved removing water from the top surface. The water-cement ratio was generally kept in tight control.

There are a number of government buildings in Olympia, Washington, that were done using Mo-Sai panels as the outer form. Those buildings are still in use.

As the industry developed, other manufacturers entered the market using marble aggregates and sandblasted surfaces.

The Mo-Sai members were reluctant to use anything but hard aggregate and were also reluctant to use retarders produced by companies like Preco. Almost every Mo-Sai member company was owned by an individual or a family. As the original managers got older and turned the company over to family members, the companies lost direction. The new managers were not interested enough to work hard enough to survive. Those that sold out to corporations before or after bankruptcy have managed to survive.

I am still doing some consulting, mostly as an expert witness and recommending GFRC repair. I am impressed with PCI’s latest promotion (50 Days of Precast). I always thought that plant visits were the best way to get the precast message across. It has been a great life and a great industry. I have been privileged to have met so many wonderful people during my professional career.

Norman L. Donatt, President
Consulting Services, Inc.
Mill Creek, Washington

I have enjoyed reading every single article of the series of historical-technical papers in the PCI JOURNAL. In particular, I liked the article on the history of exposed architectural precast concrete. [See article on “History [Continued on page 157]
SUMMARY

A report of excessive strand end pull-in in hollow-core slabs came to the attention of PCI in April 2004 and raised concerns that strand-concrete bonding may still be an issue requiring further investigation. PCI was in the process of developing a bulletin to producers and subsequently initiated an investigation of the reported problem. A draft of the information bulletin dated June 18, 2004 was circulated prematurely, before the investigation was completed.

PCI completed the initial stage of its investigation and concluded that the recent report of poor bonding involved one precast concrete producer and was limited to a single PC (Prestressed Concrete) strand supplier. The Prestressed Concrete strand supplier in question has informed PCI that it has been monitoring customers who were recipients of strand product associated with the reported incident, and that all potentially affected customers will have been contacted by the supplier by the end of July 2004.

While this incident may affect only a limited number of precast, prestressed concrete producers, PCI is advising all of its Producer Members to remain vigilant with respect to all factors that affect bonding, particularly the quality of PC strand, and is reminding members of guidelines and test methods that are presently available.

To address this matter in the long term, PCI, in cooperation with PC strand suppliers, has established a framework to review the issue of bonding between concrete and PC strand from a rigorous technical perspective, with the objective of developing and refining the tests, standards, process controls, and other measures necessary to reduce the incidence of bonding problems to the lowest practical level.

BACKGROUND

The mechanical bond between concrete and PC strand is essential to the manufacture of pretensioned, prestressed concrete elements. PCI Producer Members implement operational and quality controls to ensure that their processes and materials are consistent with applicable standards and overall product quality. Similarly, suppliers of PC strand, many of whom are PCI Associate Members, work to ensure that their products are suitable for this purpose.

While there have been occasional incidents of less than acceptable strand-concrete bonding over the years in this industry, these incidents are typically traced to particular changes or deviations in materials or processes and are successfully corrected. Testing guidelines and technologies have been markedly improved in recent years and have enhanced the ability to confirm acceptable bond performance for PC strand.

RECENT INCIDENT

The recent reported concern resulted when a producer noted greater than maximum allowable strand end pull-in for manufactured hollow-core members, an indicator of poor bonding. The strand being used had been tested by the supplier using the “NASPA Test” with acceptable, albeit inconsistent, results. A sample was subsequently sent for independent testing using the “Large Block Pull-Out Test” (an improved version of the “Moustafa Test,” and the results indicated a significantly lower bond strength than the control sample.

The strand supplier has been working with the producer and has thoroughly reviewed the processes and materials utilized, but a specific cause for this incident has not yet been identified. PCI has not received any other recent reports of poor bonding, connected with this or any other PC strand supplier, or with any other product type.

The strand supplier involved indicated that it has been monitoring customers who were recipients of PC strand product associated with the reported incident, that it is in the process of notifying all potentially affected customers, and that it expects to have completed these notifications by the end of July 2004.

RECOMMENDATIONS TO PRODUCERS

Acceptable bonding between concrete and strand is dependent upon many factors, all of which come together during the production process. Product inspections can detect evidence of inadequate bonding for certain product types. Management should remind production and quality control personnel of the types of observations appropriate to the product being manufactured (excessive end pull-in, unexplained camber deviations, etc.). If there is any question as to the ability of a particular concrete mix design to produce acceptable bonding using a given strand source, representative product samples should be fabricated and load tested.

Producers should take appropriate steps to assure themselves that the strand they are using has acceptable bonding characteristics. PCI’s “Manual for Quality Control for Plants and Production of Structural Precast Concrete Products,” Fourth Edition (MNL-116-99), states that the capability of the strand to properly develop bond shall be substantiated either by certification from the strand supplier or by testing (see Section 6.2.2). Producers who rely on certificates from strand suppliers to meet this requirement should understand the basis for the certificates’ claims. Producers who, in addition, rely on testing to substantiate adequate bond have resources available (in addition to their own tests) for conducting independent testing of PC strand bond-
ing characteristics. Information and guidance for testing of PC strand bonding characteristics will be provided in an Interim Guidance Document to be issued separately.

Existing product standards applied to PC strand (particularly ASTM A-416) do not address bonding capacity. To provide an appropriate performance criterion, purchasing specifications should include a requirement that the strand “will bond to concrete of normal strength and consistency in conformance with the prediction equations for transfer and development length provided in ACI and AASHTO standards.”

Producers should also be aware that variations in cement sources and/or blending, particularly in light of recent cement supply problems, could affect strand-concrete bonding, and that it is possible for such adjustments to be made by cement suppliers without their customers’ knowledge.

Producers who encounter instances of inadequate strand-concrete bonding, regardless of the cause, are encouraged to contact PCI so that PCI can compile experiential data and issue advisories when appropriate. Such information should be sent to Jason Krohn, PCI Technical Director, jkrohn@pci.org; (312) 583-6771.

**PCI ACTIONS**

**Near Term**

- PCI has formed a task group to address the recent incident, which will form the nucleus of a permanent committee to study strand-concrete bonding (see below).
- The PCI Plant Certification Program requires that each Producer Member implement quality measures to ensure the capability of strand it uses to properly develop bond. Auditors will now explicitly include this item in every plant audit report. Auditors will also continue to be alert for indications of inadequate bonding that may be observed during Plant Certification audits and report any such evidence to the Producer Member.
- PCI has initiated a program to solicit, collect, and review information regarding instances of inadequate strand-concrete bonding, regardless of the cause. PCI will compile and technically evaluate this data, and communicate with involved organizations as deemed necessary.
- PCI will convene a technical committee focused upon strand-concrete bonding in precast, prestressed concrete, considered from all perspectives. The committee will review existing knowledge on the topic, both domestic and international, as well as disseminating new information from testing and industry experience. It will analyze data developed as a result of the information gathering initiative described above, will review research results as they become available, and identify additional research needs as appropriate.

**Longer Term**

- PCI will work with the North American Strand Producers Association (NASPA) to develop a practical, economical test for use in strand manufacturing facilities that can reliably predict the bonding characteristics of PC strand.
- PCI will support the development, improvement, and, where appropriate, standardization of guidelines and test methods relating to strand-concrete bonding based upon research results, solid empirical data, and practicality. Where and when appropriate, these results will be incorporated into the PCI Plant Certification Program. For additional information, contact: Jason Krohn, PCI Technical Director, jkrohn@pci.org, (312) 583-6771.

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Such a test is a desirable part of a complete quality process that evaluates materials and components, as well as the final product. This test should ideally be quantitative, i.e., it should reliably predict whether a given strand sample is capable of providing the transfer and development lengths assumed in the ACI 318 Building Code and the AASHTO Bridge Design Specifications. The most fully developed of these efforts are described below.

In the early 1990s, a PCI Producer Member (Stresscon of Colorado Springs, CO) conducted a great deal of voluntary strand bond testing work under the direction of its chairman, Donald R. Logan. Building upon work conducted by Dr. Saad Moustafa, Logan identified the key parameters involved in improving consistency in measuring bonding capability (the “Moustafa Test” was the subject of a PCI JOURNAL article, “Acceptance Criteria for Bond Quality of Strand for Pretensioned Prestressed Concrete Applications,” March-April 1997). Logan set down the basic framework for what came to be called the “Large Block” pull-out test and began correlating his results with beam development length and transfer length tests.

Although not in the testing business, Logan has assisted other PCI Producer Members by conducting many tests of samples they have submitted and providing them advice for conducting their own tests. The “Large Block” test is presently widely used by PC producers. Its most recent improvement reduces variability related to aggregate in the test concrete.

In 1997, the North American Strand Producers Association (NASPA), in cooperation with Oklahoma State University, began development of a strand bond qualification test (NASPA Test), which today is widely used by PC strand suppliers. NASPA is planning to conduct additional development that will reduce variability and enable better statistical correlations.

Beginning in 2001, Dr. Robert J. Peterman of Kansas State University conducted additional “Large Block” type tests and integrated and further correlated his and Logan’s results. RJ Peterman and Associates, Inc., has since been providing independent testing services to the industry.

**CURRENT SITUATION**

PCI has reviewed both the NASPA and “Large Block” type tests, the correlation of their results with those of traditional load tests, and their proposed acceptability criteria. While both tests have strengths and shortcomings and are undergoing continuous improvement, PCI has concluded that the “Large Block” test is, at present, the most consistent and best correlated.

The resources listed below can provide information on conducting “Large Block” tests. Additional information, including reprints of the PCI JOURNAL article mentioned above, is available from PCI at (312) 786-0300; info@pci.org:

Donald R. Logan  
Stresscon Corporation  
P.O. Box 15129  
Colorado Springs, CO 80935  
Phone: (719) 390-5041  
Fax: (719) 390-5564  
E-mail: dlogan@stresscon.com

Robert J. Peterman  
RJ Peterman and Associates, Inc.  
3016 Jeanie Lane  
Manhattan, KS 66502  
Phone: (785) 532-9693  
E-mail: rjpeterman@sbcglobal.net

All of the tests available, including the “Large Block” and NASPA tests, are being constantly improved and refined. Other tests are under development, and new types of tests are being discussed. As the knowledge base expands and technology improves, PCI will continue to review new information and advise the industry.

**ONGOING RESEARCH**

Several ongoing private and government-funded research programs include characterization of strand-concrete bonding in normal and self-consolidating concrete (SCC). Valuable information is expected to be forthcoming from these efforts over a timeframe of one to three years. PCI will use part of a technical session on Wednesday morning, October 20, at the 2004 PCI Convention (to be held October 15-20, 2004 in Atlanta, GA) to outline the status of ongoing work on the issue.

Also, in late 2003 the National Cooperative Highway Research Program (NCHRP) initiated a work plan (NCHRP Project 10-62) with Wiss, Janney, Elstner Associates, Inc., titled, “Acceptance Tests for Surface Characteristics of Steel Strands in Prestressed Concrete.”

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LETTERS TO THE EDITOR

(Continued from p. 153)

of Exposed Aggregate (Mo-Sai) Architectural Precast Concrete” in the May-June 2004 PCI JOURNAL. The common thread in all these precast ventures is that success can only come with dedication and hard work with perhaps a little bit of luck intertwined (i.e., being in the right place at the right time).

James Cook
Phoenix, Arizona

Design for Torsion and Shear in Prestressed Concrete Flexural Members

I am so pleased to see an updated version of the old Zia-Hsu article on shear and torsion published in the May-June 2004 PCI JOURNAL. I am even happier to see that both the ACI and PCI have endorsed this particular design method. From my experience, in most cases, a more economical design solution for reinforcement is obtained using the Zia-Hsu method than the more complicated compression field theory approach.

David Jenkins
Atlanta, Georgia

Thank you for publishing an updated version of the old Zia-Hsu article (May-June 2004 PCI JOURNAL). This is a real service to the industry because we frequently use this method in our design practice.

Pedro Gonzales
Miami, Florida

TECHNICAL ACTIVITIES

The summer Technical Activities Committee (TAC) meeting was held in Napa, California, June 5 to 7, 2004. The following is a summary of the actions taken and information shared:

- TAC chair Mike LaNier welcomed the members and guests to the meeting and then reported the major PCI Board decisions resulting from their meeting a day earlier.
- With TAC input, PCI has released a statement on the strand-to-concrete bonding issue that appears in the Industry News section of this PCI JOURNAL, under PCI Technical Bulletin, Strand-Concrete Bonding (see pages 154-156).
- The PCI Field Qualification (Certification) Program is transitioning from qualification to certification. This new status will be voted upon at the PCI Convention in Atlanta, Georgia, this fall. If passed, it would mean that field audits beginning in 2005 would be carried out by PCI Certified Field Auditors (CFA).
- The Board has approved the eligibility of plant engineers to become PCI Professional Members subject to certain qualifications.
- The subject of maximum curing temperature of precast concrete products came up for lively discussion. The Board decided to empower TAC and the Plant Certification Committee to come up with a resolution of the matter that would be incorporated in the next edition of the PCI Quality Control Manuals (MNL 116/117).
- TAC called for ballots on the following items:
  - An amendment to incorporate Self-Consolidating Concrete (SCC) into the Plant Certification Program and particularly in the revised editions of the PCI Quality Control Manuals (MNL 116/117). Essentially, this means incorporating the major sections of “Interim Guidelines for the Use of Self-Consolidating Concrete in PCI Member Plants” (TR-6-03) into the above. Of particular importance is the measurement of concrete flow in SCC (in place of the conventional slump test) and the SCC placing procedure.
  - The following two specifications are being balloted for inclusion in the PCI Industry Design Handbook:
    - Guide Specification Section 03410 Structural Precast Concrete.
    - Guide Specification Section 034XX Structural Precast Concrete With Commercial Architectural Finish.
      - It should be mentioned that neither of the above specifications will be printed in the Industry Handbook but will be made available on the PCI Web site.
- A subcommittee was formed to finalize new language regarding restraint for fire design to be incorporated in the Industry Design Handbook and Design Manual for Fire Resistance of Precast Prestressed Concrete (MNL 124).

INVIATION TO PRODUCER MEMBERS TO JOIN COMMITTEES

- Plant Certification
- Prestressed Concrete Poles
- Hollow-Core Slab Producers

Individuals interested in joining these committees should contact Jason Krohn at PCI Headquarters.
Doug Sutton, chair of TMRD (TAC-Marketing-Research & Development) Committee, reported upon the results of the May 26 TMRD meeting held at PCI Headquarters. A major topic of discussion was the proposed concept of combining R&D and Student Education activities under the umbrella of a new PCI Foundation. A Study Committee comprised of Bill Simmons, Tom D’Arcy, Tom McEvoy, Pat Hynes, Mike LaNier, Jim Voss and Jim Toscas was appointed to review this concept and make a recommendation to the Board by the winter of 2004.

Tom McEvoy is replacing Tom Holmes as chair of the Market Plans Committee. The following topics related to Technical/Marketing were discussed:
- Validity of market for precast paving slabs.
- Industry response to mold.
- Likely market for precast concrete structures designed for blast resistance.
- Potential market for precast concrete structures related to municipal water supplies.
- Fire-related issues regarding precast concrete construction.
- Technical/Marketing will continue to focus on:
  - Total precast concrete structures.
  - School market area.
  - Sustainable design. This topic revolves around environmentally sensitive issues and energy efficiencies.
- TAC review and balloting of Chapter 20, Piling, Bridge Design Manual, has been completed. The chapter is now being revised.
- The Quality Control Training Manual (TR 101) is nearing completion and should be available for TAC review in early 2005.
- Progress is continuing in the revisions of the Architectural Precast Concrete Manual (MNL 122). It is expected TAC will be seeing this manual for review in mid-2005.

A background article regarding the changes in the PCI Design Handbook (Sixth Edition) is being developed. A session will be held at the PCI Atlanta Convention to outline the changes and new material in the Sixth Edition.


Tom D’Arcy reported that the Parking Structures Committee is working on defining issues related to joint sealing performance in garages. A survey has been sent out to producers to find out how installation procedures of joint sealing are currently being carried out.

Frank Nadeau reported that Pat Hynes is the new chair of the Precast Sandwich Wall Panels Committee. The committee is currently finishing up a revised state-of-the-art report on sandwich wall panels.

Simon Harton stated that the Precast Concrete Piling Committee needs research work to determine the most appropriate spiral reinforcement equation for designing prestressed concrete piles.

George Nasser reported that the Prestressed Concrete Poles Committee is developing three separate recommended practices for streetlighting, sporting and transmission poles.

Don Raths reported that progress is being made in the following areas of the Professional Member Committee:
- Distribution of Career Paths brochure to universities and regional marketing directors.
- Distribution of Professional Member Recruiting brochures.
- Work with Georgia/Carolinias Group to develop technical seminar at PCI fall convention in Atlanta.
- Development of the Leadership PCI Program to be unveiled at PCI’s fall convention in Atlanta.
- Board approval of providing Professional Member status to qualified plant engineers.
- Don Raths reported that the emphasis of the JOURNAL Advisory Committee is to strengthen the Gift Subscription Program and to ensure that all vital staff of producer member companies receive the PCI JOURNAL.
- Paul Johal reported that the Fiber Reinforced Plastic (FRP) Composites Committee (Sami Rizkalla, chair) has initiated work on a state-of-the-art report on FRP.
- S. K. Ghosh provided an update of model code activities:
  - It appears that until 2008, the state of California will be using UBC 97 (Uniform Building Code).
  - IBC 06 (International Building Code) is nearing final completion. In the future, IBC will issue one supplement between three-year code cycles.
  - The next cycle of ASCE-7 (American Society of Civil Engineers) after the 2005 revision will be the 2010 revision. It is probable that IBC 06 will adopt ASCE-7 05.
  - The next revision of NEHRP Provisions (National Earthquake Hazards Reduction Program) will be 2008. For further details on NEHRP, see article by S. K. Ghosh in May-June 2004 PCI JOURNAL.
- TAC approved awarding the Bridge Design Manual Committee, the principal chapter authors, and the Blue Ribbon Panel, with the 2004 PCI Certificate of Merit.
  
  This award is in recognition for the tremendous amount of work that the committee (led by John Dick) performed in developing the Bridge Design Manual.
  
  The award will be presented at the PCI Convention in Atlanta this fall.

New Appointments to PCI Committees

The following individuals have recently accepted appointments to PCI committees. We appreciate their interest and voluntary participation.
- **Bridge Producers Committee**
  - Chris Hill
    Prestress Services, Inc.
    Lexington, Kentucky

- **John Dobbs**
  Bayshore Concrete Products Corporation
  Cape Charles, Virginia

- **Committee on Bridges**
  - David H. Deitz
    Palmer Engineering
    Winchester, Kentucky

R&D COMMITTEE NEWS

Update on High Priority R&D Projects

1. Design Criteria for Headed Studs - WJE

Researchers at Wiss, Janney, Elstner Associates have completed both phases of the PCI sponsored project on “Design Criteria for Headed Stud Groups.” The shear testing program included 328 shear tests on a variety of stud group configurations. Results indicate that the Concrete Capacity Design (CCD) approach proposed by ACI is conservative and, therefore, needs to be modified for an accurate prediction of shear strength. The final draft report on Phase I has been reviewed by the PCI Advisory Committee, and is scheduled for publication shortly. Preliminary Design Recommendations on the Phase II program (combined shear and tension) have also been prepared and the report will be completed by the end of this year.

Based on this research, several changes have been proposed for the next cycle of the ACI 318 Building Code. The results have also been incorporated into the Sixth Edition of the PCI Design Handbook.

2. Design Methodology for Precast Diaphragms – Arizona, Lehigh and UCSD

This project is being carried out by a consortium of three universities: University of Arizona, Lehigh University and the University of California, San Diego. The research objective is to develop an industry endorsed recommended practice for the design and construction of diaphragms that use precast/prestressed concrete components. The research program includes pretopped and topped diaphragms using both double-tee and hollow-core units. The National Science Foundation (NSF) has approved a grant of $475,000 for the Precast Diaphragm Research Program. The approved NSF grant, combined with industry contributions from PCI and precast producers, will allow for an extensive research program in the range of one million dollars over a three-year period.

The research approach involves an extensive analytical research program centered at the University of Arizona; full-scale static tests of reinforcing details and precast connection regions at Lehigh University; and shake table tests on scaled models of precast structures at the University of California, San Diego. A pilot test program is being planned at Lehigh to evaluate the performance of the reinforcement detail candidates. The shake table testing program is currently being developed at the University of California, San Diego. Plans are being made to use a new shake table facility at the Network for Earthquake Engineering Simulation (NEES) Center that will allow the structure to be tested at one-
third to half scale which is more desirable than the 25 percent scale included in the original proposal.

3. Volume Change Movements and Forces - WJE

Current work includes an ongoing literature survey, performing an industry survey, and monitoring structures. Initially, a single-story parking structure was instrumented in Oak Park, Illinois. Data from this structure have been collected, and two additional structures in Denver, Colorado and Washington, D.C. are in the process of being instrumented. Advisory group meetings have been held on a regular basis to review the progress and to discuss future activities.

Strand Bond Research Planned at Kansas State

With pledged contributions from approximately 17 precast producers and material suppliers, an extensive research program is being planned to investigate the bond of prestressing strand used in Self-Consolidating Concrete. The research will be carried out at Kansas State University under the direction of Professor Robert Peteman.

PCI’s R&D Committee has agreed to contribute up to $20,000 to this program from the R&D Committee Budget. An advisory committee has been formed to monitor this research program estimated at a total budget of $200,000. The research program is expected to be completed in a period of approximately 12 months.

Research Reports Received at PCI Headquarters

As a result of on-going research activities and fellowship programs, PCI periodically receives reports from different research agencies and universities. Several reports have been recently received at PCI Headquarters. Copies can be made for PCI members at a nominal cost of reproducing these documents. Requests may be sent to PCI’s Research Director, Paul Johal.

**PCI Research Reports**


Daniel P. Jenny Fellowship Reports


2. “Section, Member and System Level Analyses for Precast Concrete Hybrid Frames,” by S. Vernu and Sri Sritharan, Iowa State University, June 2004.


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**STUDENT EDUCATION**

PCI Professors’ Seminar

PCI’s Student Education Committee (Pat Hynes, chair) again co-sponsored PCA’s Annual Building Professors’ Seminar which typically attracts 30 to 40 civil engineering professors every year. The seminar, held at PCA Headquarters in Skokie, Illinois on August 2-4, 2004, covered the teaching of reinforced and prestressed concrete design fundamentals, economical design of multistory concrete buildings, unified design provisions in ACI 318-02, and seismic design details for concrete buildings.

August 4th was allocated exclusively to cover precast and prestressed concrete structures. The topics included the use of the PCI Design Handbook in Student Education, tour via slides of a precasting plant, teaching prestressed concrete through the PCI Big Beam Contest, design of total precast framing systems and ACI 318-02 Structural Integrity Requirements.

The professors also attended the Sixth Annual Bridge Professors’ Seminar on August 5-6. This seminar provided professors with background information and tools to facilitate teaching new concepts introduced in the latest AASHTO Bridge Design Specifications, which contain design requirements significantly different from those found in the ACI 318 Building Code.

Attendees received handout materials provided by the speakers, a CD-ROM with PowerPoint presentations, and publications related to the topics. Professors are sponsored by industry promotion groups, including PCI Regional Marketing Organizations.

**PCI Announces 2004 Architectural Design Awards**

PCI’s Student Education Committee (Pat Hynes, chair) has announced the results of the 2004 Student Architectural Design Competition. There were more than 30 entries in the third year of this program. The competition was based on the development of a “Habitat for Humanity” style single-family...
In May of this year, PCI President James G. Toscas led the annual PCI technology tour, now called “TechnoQuest,” to Belgium. Forty-one members and guests visited eight precast concrete plants in the Brussels area. The group met with plant officials, producers, and witnessed some of the latest automated structural precast production systems and high end architectural precast finishing techniques.

Companions enjoyed cultural tours of nearby cities, shopping trips, social activities and general good fellowship.

This year’s tour sponsors, CTI, Inc. - Concrete Technology (Green Bay, Wisconsin), Decomo Beton S.A. (Mouscron, Belgium), Echo Engineering (Houthalen-Hechteren, Belgium), Elematic Oy Ab (Toijala, Finland), JVI, Inc. (Lincolnwood, Illinois), and Simem America, LLC (San Antonio, Texas), helped develop the overall arrangements and supported many of the meals and social events included in the TechnoQuest program.

PCI offers special thanks to Mark Schumacher of CTI, Inc., for acting as on-site coordinator for the plant tours. Preliminary plans for the TechnoQuest 2005 Tour are underway. More information will be forthcoming in January of 2005.

CALL FOR ENTRIES — ENGINEERING STUDENT DESIGN COMPETITION
(BIG BEAM CONTEST)

The PCI Student Education Committee (Pat Hynes, chair) has enthusiastically decided to continue sponsoring PCI’s Engineering Student Design Competition in 2004-05 and beyond. With the help of local PCI Producer Members, students will construct and test precast prestressed concrete beams. The awards program, sponsored by Sika Corporation, includes cash prizes for the most efficient design, highest load capacity, best report, and other categories. Additional information on beam size, application deadline and rules will be provided shortly. PCI Producer Members are urged to encourage their local engineering schools to participate in this program. For more information on this competition and other Student Education Programs, contact PCI Research Director Paul Johal at (312) 360-3213.

ENGINEERS AND CAD TECHNICIANS

Progressive engineering corporation is seeking engineers and CAD technicians with 2 or more years experience in the design and detailing of structural and architectural precast concrete products. Mail or fax resume to:

PTAC Consulting Engineers
880 N. Reus St., Ste. 201
Pensacola, FL 32501
Phone: (850) 432-8446
Fax: (850) 432-9875
residential structure with 900 to 1150 sq ft (84 to 107 m²) of floor area. The judging was done on April 22 at the Construction Specifications Institute (CSI) Show in Chicago. The judging team picked the first, second and third place winners in the Student and Intern Development Program (IDP) categories as follows:

I - Student Category:
First Place: Jean Sebastian Mailhiot, School of Architecture, Université de Montreal
Award: $3000
Faculty Advisor: Roger-Bruno Richard
Award: $1000

Second Place: Sebastien Roy, School of Architecture, Université de Montreal
Award: $2000
Faculty Advisor: Roger-Bruno Richard
Award: $500

Third Place (Co-Winner): Etienne Coutu, School of Architecture, Université de Montreal
Award: $500
Faculty Advisor: Roger-Bruno Richard
Award: $125

II - Intern Development Program (IDP) Category:
First Place (Co-Winner): Thomas A. Smith, P. B. Buildings, St. Louis, Missouri
Award: $1500
IDP Supervisor: Tom Brooks-Pilling
Award: $1000

Second Place: Richard D. Villa Bower, Lewis, Thrower, Philadelphia, Pennsylvania
Award: $2500
IDP Supervisor: Michael Ryan

Third Place: Benjamin H. Beard Hackley/Lang & Associates, Chicago, Illinois
Award: $1250
IDP Supervisor: Chip Hackley

INDUSTRY PEOPLE

McCoy Appointed President/CEO at HWA

Helmuth Wilden, founder of H. Wilden & Associates, Inc. (HWA), Allentown, Pennsylvania, has announced the appointment of Todd G. McCoy as president and chief executive officer of HWA.

Mr. McCoy graduated from Iowa State University in 1984 with a degree in civil engineering and was a member of several honorary societies during college. He served as a project engineer for an Iowa precast manufacturer before joining HWA in 1987. A registered professional engineer in several states, he was appointed vice president of HWA in 1997 and has served in that role, as well as project engineer. Mr. McCoy was elected Young Engineer of the Year in Pennsylvania in 1997.

Mr. McCoy will oversee HWA staff in Allentown and Brentwood, which includes six registered professional engineers and 60 engineers, project managers, and support personnel. Very active in PCI technical work activities, he is a member of the Technical Activities Committee and the Professional Member Committee.

HWA is a subsidiary of TRC Worldwide Engineering, headquartered in Brentwood, Tennessee. Other subsidiary firms include TRC International in Brentwood and Jenkins and Charland at six locations in Florida. All firms serve the civil and structural engineering profession. Helmuth Wilden will remain as chairman and serve as project manager on several key projects currently in progress.

AEA Presents Herald Award to Weingardt

The American Engineering Alliance (AEA) presented its Herald Award on May 19, to Richard Weingardt, of Denver, Colorado. Presentation of the honor is a rare occurrence and reserved for extraordinary achievements by an engineer in keeping the engineering community and the public informed on issues and developments critical to society and the engineering profession. The ceremonies were held at AEA’s 2004 Membership Meeting and Awards Dinner in New York City.

The AEA became familiar with Mr. Weingardt’s work as a columnist for Structural Engineer magazine. AEA Chairperson Sal Galletta says, “His columns consistently beat the drum for empowerment for engineers, exhorting them to step up and take their rightful place of leadership in society.”

Mr. Weingardt, a long-time PCI member and contributor to the PCI JOURNAL, is founder of the Denver-based engineering firm Richard Weingardt Consultants, Inc.
Peterson Joins CEG

The Consulting Engineers Group, Inc., (CEG) has announced the addition of Dave Peterson in their Mt. Prospect, Illinois office as project manager. Mr. Peterson earned both his bachelor’s and master’s degrees in civil engineering from the University of Nebraska at Omaha, in 1974 and 1988, respectively. In 1984, he won a PCI Fellowship Grant. Mr. Peterson’s 15 years of experience working for a variety of contractors, consultants, and producers in construction engineering in the precast industry will enhance CEG’s project management and engineering capabilities.

He has been a member of the PCI Sandwich Wall Panel Committee from 1995-1997 and from 2003 to the present. As a writer, he co-authored “Simplified Flexural Design of Partially Prestressed Concrete Members,” published in the May-June 1985 PCI JOURNAL and was a contributing author of “State of the Art of Precast/Prestressed Sandwich Wall Panels,” which appeared in the May-June 1997 PCI JOURNAL. He most recently worked for Iowa Prestressed Concrete.

Gate Names Director

Gate Precast Co., Jacksonville, Florida, has appointed Jim Lewis as director of architectural systems. Mr. Lewis has focused his architectural career in the design and implementation of high-performance building systems. He specializes in converting designs originally planned for hand-laid brick to brick-inlay precast concrete. In his new role at Gate, he will be educating architects, general contractors and owners/developers across the eastern portion of the United States about the combined functions of brick inlay precast panels.

Goring Named President Designate of The Concrete Society

The Concrete Society, Camberley, Surrey, England, has announced the appointment of Peter Goring, technical director at John Doyle Construction, as President Designate for the year 2004-2005.

Mr. Goring succeeds Bob Cather, associate director at Arup, who became president at The Society’s AGM on July 29, 2004, at the Institution of Structural Engineers in London, when the most recent president, Howard Taylor, retired.

Mr. Goring is a graduate of Imperial College, London, with a degree in civil engineering and attained an MSc in construction law and arbitration at Kings College, London. He is a member of The Institution of Civil Engineers with more than 20 years experience in the management and technical supervision of construction projects. He is a published author in a range of concrete and construction related subjects and a member of the Industrial Liaison Committee at Dundee University.

Mr. Goring is a technical executive committee member of The Concrete Society and has been involved with the compilation of several of The Society’s technical reports, including taking the chair for TR34, the publication on in-place concrete floors. Through his involvement with CONSTRUCT, the concrete structures group, he has served on the drafting panel for the National Structural Concrete Specification for Buildings and ENV Execution Standard.

Heger Honored by ASTM

Dr. Frank J. Heger (1927-2003) co-founder of Simpson Gumpertz &
Heger Inc. (SGH), was honored posthumously by the American Society of Testing Materials (ASTM) Committee C13 on Concrete Pipes, for his 40 years of service to the industry and his instrumental role in advancing precast concrete pipe specifications.

Over the years, Dr. Heger led and worked with task groups that developed several ASTM standards for culverts, storm drains, and sewer pipes. His research on direct design concepts for concrete pipe led to the development of the Standard Installations Direct Design, which is now promoted by the American Concrete Pipe Association and included in the American Society of Civil Engineers (ASCE) and American Association of State Highway and Transportation Officials (AASHTO) specifications, as well as other ASTM standard practices.

Dewberry Names Haines Senior Associate and Branch Manager

Dewberry, New Haven, Connecticut, has named Leslie A. Haines as senior associate and manager of its New Haven, Connecticut office. Ms. Haines will direct services in transportation engineering, facilities engineering, land development, water/wastewater engineering, and telecommunications work. A registered professional engineer in several states, she earned a bachelor’s degree from the University of Hartford.

Prior to joining Dewberry, Ms. Haines was the manager of company operations in two states. Her professional background includes nearly 20 years of experience in engineering management and design in the transportation field for projects involving multiple technical disciplines. She has been involved in the analysis and design of bridge structures in several states in the northeast United States.

Ms. Haines is an active member of American Council of Engineering Companies, Intelligent Transportation Society, Connecticut Road Builders Association, and the Women’s Transportation Seminar.

ASW Promotes Olp to Plant Manager

Timothy W. Selhorst, president and chief operating officer of American Spring Wire Corp., Bedford Heights, Ohio, has announced the promotion of Dale D. Olp to plant manager of the Bedford Heights, Ohio facility.

Mr. Olp joined ASW in 2002 as a process development specialist for rolled and drawn shaped wire manufacturing. He also managed wire drawing, tooling, pickling, shaving and PC strand. He began his career at Contours, Inc., and held positions for Contours’ three manufacturing facilities. He has held other manufacturing positions at Pittsburgh Tool Inc., Hoskins Manufacturing Company, and Petersen Spring.

Ray and Kraft Staff CEG’s New Florida Office

The Consulting Engineers Group, Inc., (CEG), Mt. Prospect, Illinois, has announced the opening of a new office in Lake Mary, Florida, a suburb of Orlando. Christopher Ray has joined CEG to manage the new office. A registered professional engineer, he has led projects on several parking structures and other structures.

Mark Kraft brings his extensive experience on precast/prestressed structures to CEG to better serve clients in the Southeastern United States.

The office address is 3801 International Parkway, 5th Floor, Lake Mary, FL 32746. The phone is (407) 562-1968. With offices in Mt. Prospect, Illinois, San Antonio, Texas, Cincinnati, Ohio, Ft. Lauderdale, Florida, Apple Valley, Minnesota, Bella Vista, Arizona and Horseshoe Bay, Texas, this brings the total of CEG staffed offices to eight.

COMPANY NEWS

Fister Quarries Honors Industry Icons

In honor of the professionals who made the precast/prestressed concrete industry the architectural powerhouse that it is today, Upper Canada Stone and Fister Quarries are hosting the Industry Icon Awards.

Visit www.precastguide.com/industry_icon, to read profiles on such industry giants as James Clark, Charles Wilson and Muriel Burns. Learn who their mentors were, how they got their start, and their advice to newcomers on how to grow the business. And while you are there, take a moment to nominate your own industry icon, either by clicking on the link to “nominate an icon” or by sending your suggestion to Sarah Fister Gale at sfister@mn.rr.com.

DISTRIBUTORS/SALES REPRESENTATIVES WANTED

An industry leader in precast supplies, we are expanding our distribution network. We are seeking suppliers and sales representatives to market our innovative products nationwide. Please fax correspondence to: (727) 363-7463.
Standard Concrete Products Constructs “The World’s Widest Bridge”

Standard Concrete Products, Atlanta, Georgia, was chosen by the engineering firm, Heath & Lineback Engineers, Inc., Marietta, Georgia, to design the 760 precast, prestressed concrete beams needed for a new runway at Hartsfield-Jackson Atlanta International Airport. This runway will include a precast concrete bridge that crosses 10 lanes of traffic on an interstate highway. It is believed to be the first runway bridge designed to withstand the forces of takeoffs and landings, as well as the braking force of full-sized passenger jets. When completed, the structure will be 1200 ft long x 700 ft wide (365 x 210 m).

The structure will be subjected to extremely high loads, resulting not only from the weight of airliners [as high as 1.3 million lbs (589,680 kg)] taking off and landing, but from in-
tense braking forces [approximately 1.0 million lbs (453,600 kg)]. The runway will accommodate aircraft up to the latest generation Airbus A380-900, which has not been built yet.

Precast beams were chosen over steel due to the need for a four-hour fire rating. The prestressed beams require no additional fire protection, allowing more open space and better ventilation beneath the bridge.

The beams were fabricated by Standard Concrete Products using Lafarge Type III high early-strength cement with a design strength of 10,000 psi (69 MPa).

The beams resemble a bulb tee, but range in depth from 6 ft 9 in. to 6 ft 11 in. (2.06 to 2.11 m). The beams hold up to 78 prestressing strands with a 0.6 in. (15.2 mm) diameter. Webs are tapered, with a thickness of 9 in. (225 mm) at the middle and 13 in. (1630 mm) at the ends. The top flanges were widened to 7 ft 9 in. (2.36 m).

### Finfrock Designs/Builds Apartment Parking Structure

Finfrock Design-Manufacture-Construct, Orlando, Florida, has signed a contract with Vestcor, developer and general contractor, for the Carlington Apartments parking structure in Jacksonville, Florida. Finfrock will perform as architect/engineer of record, precast concrete manufacturer and erector. The parking structure will accommodate 238 spaces and will be built to within 2 in. (50 mm) of adjacent buildings on three sides.

### County Materials Corp. Expands to Chicago

County Materials Corporation, Marathon, Wisconsin, has expanded manufacturing operations and its sales force into the Chicago metropolitan market with the recent purchase of assets from Elston Block Company, adding two locations in Chicago, including contractor stores and a new production facility. For the past 12 years, Elston Block Company was privately owned and operated by the Luis Puig family, establishing their reputation as a quality manufacturer of state-approved standard and decorative architectural concrete masonry. County Materials Corporation currently operates 23 locations throughout Wisconsin, eastern Minnesota and northeastern Illinois.

### Universal Concrete Fabricates Panels for Philadelphia Ballpark


Universal Concrete fabricated 100,000 sq ft (9290 m²) of façade. The base was formed by granite panels while the rest of the exterior consists of red brick panels accented with black bricks to form baseball diamonds and spelling out “Philadelphia” on the elevation facing Pattison Avenue. Universal was also responsible for the ballpark stairs and a two-level parking structure. Approximately 500 panels were produced at Universal’s Stowe, Pennsylvania plant over a six-month period, and varied in size from 12 to 38 ft (3.6 to 11.6 m) and weighed over 30 tons (28,216 kg). Wall panels and caps were produced at Universal’s Folsom, New Jersey plant.

### SCC Test Project at Schuylkill

More than 40 representatives of five State DOTs, the FHWA, Newcrete Products, Lehigh University, companies offering plant inspection services, and Master Builders attended a demonstration pour and lecture at Schuylkill’s plant in Cressona, Pennsylvania on April 19, 2004.

Participants witnessed the casting of four prestressed bulb tee beams, each about 45 ft long (13.7 m). The first two were cast with their normal high strength concrete mix (about 8000 psi), and the second two were cast with the mix having SCC modifiers. Further tests were made on both mixes along with demonstrations of various SCC test equipment and procedures.

**Dr. Clay Naito**, Lehigh University, Cressona, Pennsylvania, presented the current bulb tee beam testing program. A second presentation was given by **Dr. Charles Nmai**, Master Builders, about the history, evolution, applications, advantages, and experiences of SCC.

**Mark Hoover** of Schuylkill Products, hosted the day and Master Builders provided a buffet lunch to all attendees.

### MAPA Hosts Architectural Plant Seminar at Nitterhouse

The Mid-Atlantic Precast Association (MAPA) hosted an Architectural Precast Concrete Seminar at Nitterhouse Concrete Products, Inc., Chambersburg, Pennsylvania on June 15.

Approximately 40 architects, engineers, and contractors attended the seminar to learn about production
methods used when producing architectural precast concrete products. The attendees came from several mid-Atlantic states.

Charles “Chuck” Fister, Fister Quarries Group, Inc., gave a presentation about aggregates and Mark Porreco, A.L. Patterson, spoke on form liners. Nitterhouse hosted a plant tour and respective engineers spoke about quality control issues.

Silica Fume Added to EPA’s Recovered Materials Listing

The Environmental Protection Agency (EPA) amended, and entered into the Federal Register on April 30, 2004, Part 247 Comprehensive Procurement Guideline (CPG) for Products Containing Recovered Materials to include “concrete containing silica fume.” Mark Benedict, president of the Silica Fume Association, says that he expects this ruling will encourage agencies to include silica fume in their specifications for high strength and/or high performance concrete.

CALL FOR PAPERS

18th BIBM International Congress and Exhibition

The Bureau International du Béton Manufacturé (BIBM) is sponsoring a three-day program on the theme “Meet the Future of Precast Concrete,” to be held in Amsterdam, The Netherlands, May 11-15, 2005.

BIBM is inviting contributions to the congress by submitting novel, challenging papers in English that fit within the main themes of Marketing, Technology and Applications.

The deadline for submission of the 500-word abstract is September 1, 2004. Abstracts need to be compiled and sent to the congress secretariat according to the instructions on the Web site: www.BIBM2005.com.

Authors will be notified of acceptance by October 15. The deadline for extended abstracts and papers is December 31, 2004.

IABSE Symposium

The International Association for Bridge and Structural Engineering (IABSE) has extended a preliminary invitation and call for papers to their symposium on “Structures and Extreme Events,” to be held in Lisbon, Portugal, September 14-16, 2005.

The following themes are being covered: Natural Disasters, Man-Made Events and Human Errors.

Contributors to the above themes are invited to submit a 200-300 word abstract, in English language, to: iabse.lisbon2005@lnec.pt, before August 1, 2004. Further information is available at: IABSE Lisbon 2005, Organizing Committee, c/o LNEC, Ave. Brasil, 101, P-1700-066 Lisbon, Portugal. Phone: +351-21-844 3260; Fax: +351-21-844 3025; Web site: www.iabse.org/lisbon.

Fourth RILEM International Conference SCC 2005

The Second North American Conference and the Fourth RILEM International Conference on Self-Consolidating Concrete (SCC) are combining efforts for a three-day event, hosted by The Center for Advanced Cement-Based Materials (ACBM), to be held October 30 - November 2, 2005, in Chicago, Illinois.

Many industry associations are taking a major role in co-sponsoring this event, including: the American Concrete Institute, RILEM, and the Precast/Prestressed Concrete Institute.

Abstracts were due August 1, 2004 and authors will be notified of acceptance by September 15, 2004. Completed papers are due January 31, 2005. Additional information can be found at www.scc2005.info.

Fourth International CPI Congress

Concrete Products International (CPI) Magazine is sponsoring the Fourth International CPI Congress, entitled “Innovations in Concrete – Reshape the Future of Building,” scheduled for October 26-29, 2004, at the Maritim Hotel, Bonn, Germany.

For details about this event, please contact Stefan Rath or Gerhard Klöckner, telephone: +49 (0) 2236-962390; fax: +49 (0) 2236-962396; e-mail: info@ad-media.de; or visit CPI’s Web site at: www.cpi-congress.de.