LETTERS TO THE EDITOR

Diaphragm Behavior in Seismic Design of Precast Concrete Structures

The authors of the article on diaphragm behavior and design are to be congratulated on the orderly and thoughtful presentation of the issues identified regarding this ubiquitous method of resisting lateral forces in parking structures. (See article, "Proposed Revisions to 1997 NEHRP Recommended Provisions for Seismic Regulations for Precast Concrete Structures: Part 3 – Diaphragms," November-December 2000 PCI JOURNAL.) As is usual, however, my concern regards the issue which is not addressed in the article and I am wondering whether your research had addressed that issue.

In observing Fig. 2 (p. 52 of the article), I reflected on why this crack appeared at the column line. A moment's reflection on the way in which these structures are assembled reveals that in the time between the inverted tee girder supporting the double tees being loaded and connections between the tees welded and the seismic event, significant rotation of the girders has occurred. This rotation is due to creep deflection, loading of the tees, and relaxation of the prestressing force.

A quick analysis indicates that, depending on the span and the method of connection of the girder to the column, a significant force can develop due to this rotation at the joint between the precast tees at the column line. As is stated in the article, the joint connectors had ruptured. It would appear to me that this is the critical condition for the diaphragm. This is the location of greatest demand for deformation of the connectors and the location of the largest forces in the connectors. Without limiting the forces and deformations in these connectors, other than those associated with seismic events, a safe condition will not exist.

I would be most interested in your view on this issue.

Michael J.A.H. Jolliffe
President
Zaldastani Associates, Inc.
Boston, Massachusetts

We wish to thank Mr. Jolliffe for his thoughtful comments on the possible causes of cracking in this parking structure. A full response on this issue will be published in the Reader Comments section of the May-June 2001 PCI JOURNAL.

EDITOR

Linn Cove Viaduct

Hello from the Blue Ridge Mountains in North Carolina! Here is an unusual request for you. May I have permission to photocopy your little pamphlet from the September-October 1985 PCI JOURNAL on the Linn Cove Viaduct? (See article, "Design and Construction of Linn Cove Viaduct" by Jean Muller and James Barker.) This article would be included in a small journal for 250 high-school teachers visiting the Blue Ridge Parkway area through a state supported education seminar. The journal is distributed free so no funds are exchanged.

Inna Warren
Brevard, North Carolina

The PCI JOURNAL is delighted to give you permission to reprint this article. It is interesting to note that this little article has been a "Bestseller." During the past 15 years, we have had several thousand requests for reprints of this article.

EDITOR

(Continued on page 111)

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*

  Dino Scalia
  The Shockey Precast Group
  Winchester, Virginia

- *Connection Details Committee*

  Ronald E. Barnett
  Metromont Prestress
  Haines City, Florida

- *Parking Structures Committee*

  Bradley Means
  Metromont Prestress Company
  Greenville, South Carolina

- *Seismic Committee*

  Ronald E. Barnett
  Metromont Prestress
  Haines City, Florida

Gerwick and Mast Receive ASCE's OPAL Award

Ben C. Gerwick, Jr. and **Robert F. Mast** have been selected as recipients of the American Society of Civil Engineers (ASCE) Outstanding Projects and Leaders (OPAL) awards for the year 2001. They are among only five individuals that have been so honored: Jorge Manuel Dengo-Obregon (Public Works), Ben C. Gerwick, Jr. (Construction), James L. Lammie (Management), Robert F. Mast (Design), and Ralph B. Peck (Education). The OPAL awards were established by ASCE last year to celebrate the achievements and recognize the contributions of civil engineers worldwide. The winners are selected by the Awards Committee, which is made up of five former presidents of the society. The awards were presented on April 28 at an awards ceremony held at the Omni Shoreham Hotel in Washington, D.C.

Ben C. Gerwick, Jr. is chairman of Ben C. Gerwick, Inc., a consulting firm he founded in 1971. Based in San Francisco, California, the firm specializes in the design of deep foundations, and marine and offshore construction. For many years, Mr. Gerwick taught construction engineering and management as a professor on the civil engineering faculty of the University of California at Berkeley, from which he had earlier graduated. After serving five years with the U.S. Navy, he entered his father's construction business where he was later involved in the production of prestressed concrete piles, railroad ties and the development of underwater concrete technology. Active in the early growth of the precast and prestressed concrete industry, he served as PCI's fourth president in 1957-1958. In recognition of his services, he was awarded the PCI Medal of Honor and PCI Honorary Membership. For many years, Mr. Gerwick was involved with the Fédération Internationale de la Précontrainte (FIP) in which he served as president from 1974 to 1978. He was later awarded the Freyssinet Medal for his extraordinary services to FIP. In 1980, he was elected a member of the prestigious National Academy of Engineering. Mr. Gerwick is the author of three books on concrete construction and over 160 technical articles (including several in the PCI JOURNAL) on reinforced and prestressed concrete. Currently, his firm is involved in the seismic retrofit of bridges in California and recently has introduced new dam and lock technologies for navigation projects on the Ohio and Mississippi rivers.

Robert F. Mast is co-founder, senior principal, and director of engineering development of BERGER/ABAM Engineers, Inc., Federal Way, Washington. After obtaining a BS degree in architectural engineering from the University of Illinois at Urbana-Champaign in 1957, he served two years in the U.S. Army. Throughout his professional career, Mr. Mast has had enormous impact on engineering design and construction practice as applied to the seismic design of high rise buildings, bridges, stability of long span prestressed members, prestressed piles, marine piers, curved girders and other complex structures. He has the unique ability to extract an idea from research and apply it to engineering practice. More than 30 years ago, he formulated the shear-friction principle which today is widely used in the design of precast connections. He has taught prestressed concrete design at the University of Washington. Active in PCI technical committee work, he is a member of the Building Code and Industry Design Handbook committees. As a 30-year member of the ACI Building Code Committee, he has brought major contributions to precast and prestressed concrete practice. In 1995, he served as president of the American Concrete Institute. He has also been elected a member of the prestigious National Academy of Engineering. The author of numerous technical papers (including many in the PCI JOURNAL), he won the Martin P. Korn Award in 1993 and the T.Y. Lin Award in 1969 and 1973. Earlier this year, he was selected by CECW (Consulting Engineers Council of Washington) as "Engineer of the Year" for 2000.

(Continued from page 109)

Indian Wells Tennis Center

Over the years, I have had the opportunity to visit many outdoor sporting facilities worldwide. In my opinion, the Indian Wells tennis stadium is one of the best for a number of reasons:

- Practically every seat is arranged so that it appears close to the tennis court.
- The Spanish Mission style architecture of the stadium building blends very well with the stadium structure and the surrounding desert and mountains.
- The flow of pedestrian traffic leading to and from the stadium is uniquely designed.
- Precast/prestressed concrete was the ideal material with which to build this stadium.

The design-construction team is to be complimented for producing a wonderful tennis facility. (See article on "Indian Wells Tennis Garden, Indian Wells, California," January-February 2001 PCI JOURNAL.)

Paul Jones
Los Angeles, California

The Indian Wells Tennis Center has been exquisitely designed from the viewpoint of functionality, aesthetics and the customer in mind. I would venture to say that any Blue Ribbon Review Panel contemplating the construction of a new stadium (for tennis or any other sport) in the 10,000 to 20,000 spectator range should first take a good look at this facility. (See article, "Indian Wells Tennis Garden, Indian Wells, California," January-February 2001 PCI JOURNAL.)

John Smith
Los Angeles, California

I patronize the Indian Wells Tennis Center for two main reasons:

(1) I enjoy watching the world's top mens and womens tennis professionals compete in a world class facility; and

(2) I like the venue itself with its Spanish style architecture and modern conveniences.

It was only after my client showed me the article ("Indian Wells Tennis Garden, Indian Wells, California" in the January-February 2001 PCI JOURNAL) that I fully realized the major role that precast/prestressed concrete played in making this project a reality.

In my opinion, precast concrete has brought a new dimension to this magnificent stadium – it has made the facility "tennis friendly."

Luis Gonzales
San Diego, California

Port of Miami Canopy/Bridge Structures

The canopy/pedestrian bridges for the Port of Miami are majestic looking and feel secure. Because these structures are made of precast/prestressed concrete, they are well adapted to withstand the hot, salty-moisture-laden environment, high winds and heavy rains, as well as the possibility of a hurricane. The authors have done a great job in highlighting the design-construction features of this project. (See article, "Precast Concrete Canopy Offers Innovative Design and Fast Track Construction," January-February 2001 PCI JOURNAL.)

Dana Brown
Miami, Florida

Kelley Joins PCI Staff as Assistant Editor, PCI JOURNAL

Eileen (Sheetz) Kelley has joined the PCI staff at their headquarters in Chicago, Illinois, as Assistant Editor of the PCI JOURNAL. Ms. Kelley will be working with George Nasser and devoting her time to producing the bi-monthly technical journal publication for PCI. Ms. Kelley brings several years of writing and editing experience to the JOURNAL as a technical writer for the water treatment industry and chemical manufacturing industry, as well as a contributing writer and editor for various organizations. After working as an editorial assistant for *THE WHOLESALER*, a magazine in the construction industry, she became an assistant editor for *Dietary Managers Association* magazine. She holds respective associate degrees in science, art, and general studies; a bachelors degree *cum laude* in organizational communication from Elmhurst College, Elmhurst, Illinois; and a masters degree in written communication from National-Louis University, Evanston, Illinois. Ms. Kelley is a published free-lance writer and author of the *Chicagoland Trail Guide*.

TECHNICAL ACTIVITIES COMMITTEE NEWS

The PCI Industry Handbook Committee (**Kim Seeber,** chairman) is now holding four meetings per year in order to complete the Sixth Edition of the PCI Design Handbook which now has targeted the 2004 PCI Convention as the publication date.

The last meeting was held on February 17, 2001 in San Antonio, Texas. The following actions were taken:

- The Errata for the Fifth Edition of the Design Handbook has been completed. This report will now be balloted and upon approval, published in the PCI JOURNAL.
- **Les Martin** and **Bob Mast** presented information regarding the changes to ACI 318 for the 2002 Edition that will impact prestressed concrete. Three classes of concrete will be utilized that are a function of the service load stress. Class U is for uncracked sections, with the cracking limit increasing from six to seven and a half times the square root of the compressive strength. Class T is for sections in transition between seven and a half and twelve times the square root of the compressive strength that will require cracked section bilinear analysis for calculation of deflections.

The final classification is Class C that will require a cracked section analysis for determination of actual stresses and for deflections. The title of this section will no longer be "Allowable Stresses," but will be titled "Design for Serviceability."

- Chapter 23 – Anchorage to Concrete – will provide results for headed anchors closer to the Fourth Edition of the Handbook than the CCD method for tension and much closer for shear (for pre-installed anchors only). Appendix A will cover the strut-and-tie model and will replace the working stress design method. Appendices B and C will cover the same topics as at present, but the information in the code will be moved to the commentary and vice versa.
- Chapter 9 will change the load factors to the ASCE-7 (98) requirements, except for parking structures, which will defer to the local building code. Phi factors, except for tension, will be reduced. The impact of the reduced load factors and unreduced phi factor for tension should be an increase in flexural capacities of between 10 and 12 percent.
- Chapter 7 will have better defined cover requirements for precast concrete and will have a consideration as to whether any tension is present in the concrete under sustained loading for a waiver to the 50 percent additional cover requirement.
- New sections are being added to Chapter 21, including special moment frames, special structural walls, and intermediate structural walls. Note that structural walls and shear walls are considered synonymous.
- **Tom D'Arcy** reported that the scope and timetable for the next phase of research by Wiss Janney Elstner Associates (WJE) had been determined at the last meeting. The focus will be on groups of two and four studs in shear and tension and on a typical haunch arrangement. WJE should have testing completed by October with a preliminary report available at that time and final results available after the first of the year.
- **Fattah Shaikh** made a presentation regarding dapped ends of members. Concern has been expressed regarding the truss model's lack of a diagonal compression strut in areas where the prestressing has not been transferred. This matter will be further investigated by **Simon Harton** and the Chapter 4 subcommittee.
- **Courtney Phillips** described the first draft of the expanded section on vibrations written by **Bob Mast** that tells not only what to do from a design standpoint, but why the design is done in a specific manner. He stated that this report will be submitted for publication in the PCI JOURNAL and that an abbreviated version of the report will be included in the Handbook. Other work by this subcommittee includes a first draft of an expanded section on joints and sealants and a third draft will be developed on repairs. Both reports should be ready for final review by the next meeting. Work is also progressing on the thermal and structural sections for sandwich wall panels.
- **Les Martin** has been selected as the Senior Editor/Technical Editor with **Chris Perry** as Format Editor of the Sixth Edition of the Handbook.
- The most recent meeting of the Industry Handbook Committee was held April 19 at Committee Days.

R&D COMMITTEE NEWS

Notre Dame Investigating Post-Tensioned Coupled Precast Walls

Researchers at the University of Notre Dame are currently investigating the use of post-tensioning to couple precast concrete shear walls in seismic regions. A significant increase in the lateral strength and stiffness of the walls can be achieved by coupling two or more walls together.

The first phase of the research focused on analytical studies of coupled wall systems.

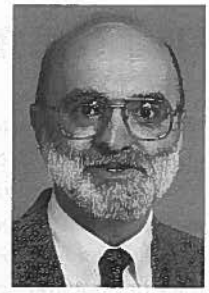
In the second phase of the research, cyclic load tests of ten half-scale coupled wall subassemblages will be conducted. The experimental program is expected to begin during the summer of 2001 and will be completed by the end of 2002.

The research is funded by the National Science Foundation (NSF) with significant support from the precast concrete industry. The principal investigator for this research program is **Dr. Yahya Gino Kurama** in the Department of Civil Engineering and Geological Sciences. Previously, Dr. Kurama performed related research on this topic at Lehigh University.


Yahya Kurama


Sarah Billington


Scott C. Sambuco


Anthony E. Fiorato

The contributions of the following industry participants to the project are gratefully acknowledged:

- CSR American Precast Concrete, Inc. donated the precast concrete test specimens and fixtures.
- Spillman Company manufactured the steel formwork for the production of the test specimens.
- Insteel Wire Products donated the prestressing strands and spiral reinforcement.
- Dywidag Systems International, U.S.A., Inc. donated the post-tensioning ducts.
- Ambassador Steel donated the reinforcing bars.
- Ivy Steel & Wire donated the welded wire fabric.
- Dayton/Richmond Concrete Accessories donated the grout and lifting anchors.

In addition to the above investigation, two related papers, funded by a Daniel P. Jenny Research Fellowship (carried out at the University of Notre Dame), have been submitted to the PCI JOURNAL for publication consideration:

- "Design of Rectangular Openings in Precast Walls Under Vertical Loads"
- "Design of Rectangular Openings in Precast Walls Under Combined Vertical and Lateral Loads"

Both these papers are co-authored by **Michael Allen** and **Yahya Gino Kurama**.

Cornell is Recipient of NSF ARC Career Award

A research program spearheaded by **Dr. Sarah Billington**, a faculty member in the Department of Civil Engineering at Cornell University, Ithaca, New York, has been named the recipient of the National Science Foundation's ARC Award. The program is administered by the Civil Engineering Foundation (CERF).

The research project investigates the use of polymer type materials in combination with precast and prestressed concrete for application in structures subject to seismic events. Specifically, this research can be applied to innovative precast bridge substructures to provide energy dissipation and reduction of deflections from seismic loads.

This research is an extension of work Dr. Billington conducted at the University of Texas at Austin which was published in an article in the July-August 1999 PCI JOURNAL, titled "A Precast Segmental Substructure System for Standard Bridges."

Sambuco New Director of Engineering at Spillman Company

Scott C. Sambuco has been appointed director of engineering services for the Spillman Company in Columbus, Ohio. Mr. Sambuco is both a registered architect and engineer, with a BS in architecture and a BS in civil engineering.

Mr. Sambuco has been employed in the structural steel industry in the Pittsburgh, Pennsylvania area for the last eight years. He recently worked on the Pittsburgh Steelers Stadium and the PNC Park for the Pittsburgh Pirates. Mr. Sambuco joins Spillman as a member of the management team. He has experience as a project engineer and a contract administration manager and has most recently supervised an engineering team of twenty.

Fiorato Elected to ASTM Board of Directors

Anthony E. Fiorato, president and CEO of Construction Technology Laboratories, Inc. (CTL), Skokie, Illinois, has been elected to serve on the American Society for Testing and Materials (ASTM) Board of Directors for a three-year term. ASTM establishes standards that are among the world's most widely used and accepted documents. Dr. Fiorato is active in many technical and professional organizations, including the PCI.

In 1997, he received the American Concrete Institute's Henry C. Turner Medal and was the 1999 recipient of the Reinforced Concrete Council's Arthur J. Boase Award.

Hamilton Form Fills Tall Order

A new innovative framing system that is being used to build the 680 Mission apartment building in San Francisco, California, could revolutionize the way tall buildings are constructed in seismically active regions.

At 39 stories, 680 Mission will become the tallest precast concrete structure on the West Coast. Charles Pankow Builders, Ltd. of Los Angeles, is using a unique moment-resisting framing system that allows columns and beams to move back into position undamaged after a severe earthquake. A Pankow subsidiary, Mid-State Precast of Corcoran, California selected Hamilton Form Company, Fort Worth, Texas, to provide the custom steel forms for all of the various precast beams and columns on the project.

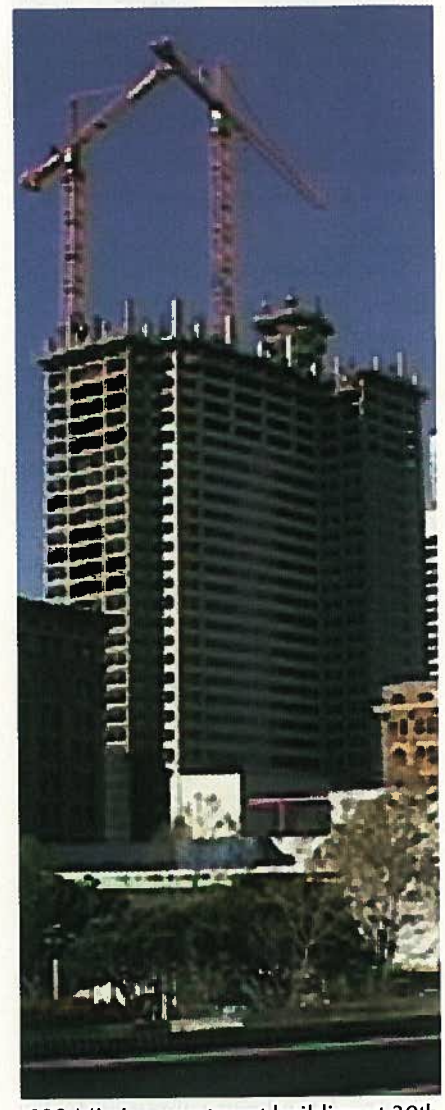
Structural load-resisting precast concrete beams and columns also serve as façade cladding on the exterior of the building. Consequently, structural members were cast and finished as architectural precast concrete products incorporating two finish colors and a light-sandblasted surface. This meant that all exposed form skin seams had to be welded and sanded smooth.

The 680 Mission project required 17 column forms, 28 beam forms and more than 100 different special product headers. The most common column size was 36 x 36 in. (914 x 914 mm), and the typical beams were 24 x 36 in. (610 x 914 mm). The custom steel forms incorporate most of the visible external architectural features of the building structure. The structural members have continuous horizontal ribs and numerous ornamental reveals that run horizontal and vertical on all exterior faces of the building.

These features on the horizontal beams had to align with the same contour on the vertical columns. In addition to architectural details, structural connection details had to be incorporated into the forms. Each beam form has a custom pair of product headers with a unique hole pattern for locating the post-tensioning ducts and alignment dowels for each beam and column connection. Column forms had precision-drilled holes for locating the alignment dowel rods and post-tensioning ducts that keep the structural members aligned and in place during seismic events.

For efficient production, Mid-State Precast requested that all forms have the Vibrotrack vibration system for concrete consolidation. The non-drafted column forms also featured a flip-back device for flexing open the forms 5/8 in. (16 mm) for stripping the finished product.

The 680 Mission apartment building is proceeding on schedule and as of April 1, was erected through the 30th floor. The building is scheduled to be topped out by June of this year.



680 Mission apartment building at 30th floor level. Courtesy: Charles Pankow Builders, Ltd.

Setting up forms for beams.

Silas Center Matches Brawn with Beauty

The Silas Center in Winston-Salem, North Carolina, was a fast-track, design-build project incorporating intricate architectural detail with high levels of structural strength. The 170,000 sq ft (15810 m²) banking operations center was designed to accommodate the power and communications needs of the most recent technologies and equipment in the banking industry in order to securely expedite millions of transactions daily.

The two-story building features a 105,000 sq ft (9760 m²) computer room with 3 in. (76 mm), raised-access flooring; a 60,000 sq ft (5580 m²) mechanical/electrical area for infrastructural support; a loading dock; and 5000 sq ft (465 m²) of office space.

The need to protect the operations inside the building dictated that it be exceptionally strong to withstand both human intrusion and natural disasters. However, the structure was to be built near an upscale subdivision, which meant developing architectural details to complement its surroundings. The project also needed to be built within a specified time frame and under an established budget. The Tindall Corporation, Spartanburg, South Carolina, was chosen as the precaster.

To meet security requirements, the Silas Center was constructed with wall panels up to 47 ft (14.3 m) tall and 9 ft (2.74 m) wide, with a thickness of up to 12 in. (305 mm), weighing about 60,000 lbs (27200 kg). Cantilevered screen wall panels surrounded a 292 x 50 ft (89 x 15.2 m) mechanical courtyard area adjacent to the main structure.

Panels used on the main structure and these 16 ft (4.88 m) projection panels at the mechanical screen wall were designed to resist tornado-induced winds of up to 200 miles per hour (322 km/hr). Wind pressures were designed to withstand a 2000-year seismic event, twice as strong as required by the building code. Precast framing throughout the structure and the mechanical courtyard secured the design strength of the building. In addition, special connection details were incorporated to prevent the unlikely event of total collapse if design failure limits are reached.

The building was designed as a Type II construction, requiring a two-hour fire resistance at the floor framing. Additional mild steel reinforcement was added for durability.

To achieve an attractive architectural facility, a highly detailed façade was developed using an architectural face mix of buff-colored concrete and through the contrast of a light sandblast finish and a retarded, exposed aggregate finish with intricate reveal patterns. The reveals were of varying depths, ranging from 1/2 in. (13 mm) (to match a panel joint) to 6 in. (152 mm) in combinations of straight lines and arches.

The patterns were designed not only to reduce the scale of the building mass, but also to accommodate exit doors, mechanical louvers and other entrances. The use of repetitive panels on the largest exterior surfaces reduced erection time and overall costs.

An ornate entrance structure provided architectural precast concrete details to match the primary structure and mechanical area. This difficult architectural detail was accomplished with an economy of fabrication and within a six-month design-fabrication-erection schedule.

The building was completed in March 1999. The owner and the design-construction team are very pleased with the attractiveness of the architectural precast concrete and during the last couple of years the tenants have been enjoying the new facility.

CREDITS

Owner: H.P. Venture II.
Architect: Smallwood, Reynolds, Stewart, Stewart & Associates, Inc.
Engineer: R. L. Daniell & Associates, P.C.
Precaster: Tindall Corporation.

ICBO NCSEA SKGA SEMINARS

Structural Provisions of the 2000 International Building Code
Wind and Snow Load Provisions of the 2000 International Building Code

Take part in an ideal opportunity to learn about the structural provisions of the International Building Code (IBC) currently replacing the three existing model codes (BOCA/National Building Code, Standard Building Code, Uniform Building Code) to regulate building design and construction beyond the year 2000. The seminars are being jointly presented by the International Conference of Building Officials, the National Council of Structural Engineers Associations and S.K. Ghosh Associates Inc.

The first one-day seminar provides a broad overview and perspective on the structural design elements of the IBC with emphasis on what is new in building code requirements for seismic and wind design and construction, including Special Inspection and Quality Assurance requirements soon to be adopted nationwide. To aid in a transition for long-time users of the NBC, SBC and UBC, the seminar includes one-on-one comparisons between the 2000 IBC and the structural requirements of the current model codes.

The second one-day seminar provides background to and in-depth explanation of the wind and snow load provisions of the 2000 IBC. Illustrative examples are included. Comparisons with provisions in current model codes are also provided.

Seminar details are available at www.skghoshassociates.com, www.icbo.org (where you may also register) and at www.ncsea.org.

August 2001	21	Los Angeles, CA	Structural Overview
August	22	Ontario,CA	Wind and Snow
August	23	Las Vegas, NV	Structural Overview
August	28	Minneapolis, MN	Structural Overview
August	29	Minneapolis, MN	Wind and Snow
August	30	Kansas City, MO	Wind and Snow
September	10	Seattle, WA	Wind and Snow
September	11	Portland, OR	Wind and Snow
September	12	San Diego, CA	Structural Overview
September	25	Salt Lake City, UT	Wind and Snow
September	26	Phoenix, AZ	Structural Overview
September	27	Albuquerque, NM	Wind and Snow
October	16	Charlotte, NC	Wind and Snow
October	17	Atlanta, GA	Wind and Snow
October	18	Columbia, SC	Wind and Snow
November	13	Albany, NY	Structural Overview
November	14	Philadelphia, PA	Wind and Snow
November	15	Richmond, VA	Structural Overview
November	27	Miami, FL	Wind and Snow
November	28	New Orleans, LA	Wind and Snow
November	29	Houston, TX	Wind and Snow
December	4	Boise, ID	Structural Overview
December	5	Denver, CO	Wind and Snow
December	6	Phoenix, AZ	Wind and Snow

High Concrete Structures Awarded Seven Major Parking Structure Contracts

High Concrete Structures, Inc., of Denver, Pennsylvania, has announced the accquisition of seven major parking structure contracts:

- Reading Hospital, Reading, Pennsylvania
- Overlook Farm Corporate Center, Readington, New Jersey
- Lehigh University, Bethlehem, Pennsylvania
- Willow Grove Mall, Willow Grove, Pennsylvania
- Black and Decker, Towson, Maryland
- Continental Airlines, Newark, New Jersey
- Astra Zenica Pharmaceuticals, Wilmington, Delaware

High Concrete Structures is also furnishing precast products for the following three projects:

- **Robert Wood Johnson Hospital in Brunswick, New Jersey**. Working with architects Rothe Johnson Fantacone, the precaster helped create an elegant façade for the three-level building.The architects looked at several alternatives to make 12 large panels more interesting. The panels were sandwiched from above and below by glass. A special form liner was introduced to simulate flagstone on a large square in the center of each panel. Inside each square, an actual granite medallion was cast into the panel. The facade's rich white architectural mix is set off by two sandblast finishes, light and medium-to-heavy.
- **Parking Structure for Morris Corporate Center IV in Parsippany, New Jersey**. This 123,800 sq ft (11500 m^2) parking deck is a "twin" of an earlier structure produced by the same team, which was headed by general contractor Sordoni Skanska Construction Co.
- **Parking Structure in Harrisburg, Pennsylvania**. Working with architects Bolin Cywinski Jackson and structural engineer Stopen Engineering Partnership, it took nearly two years to create an innovative design for the 230,000 sq ft (21370 m^2) parking deck without compromising aesthetics

or structural efficiency. The visual effect of the design is similar to that of a punched window office building rather than a traditional parking garage. It minimizes the spandrel area, allowing in more daylight and better views of the downtown area.

Faculty Enhancement Workshop at The University of Colorado

The Center for Science and Technology of Advanced Cement-Based Materials (ACBM) and the Portland Cement Association (PCA) will sponsor their Annual Undergraduate Faculty Enhancement Workshop at the University of Colorado, Boulder, Colorado, July 15-18, 2001.

The workshop will address the issues of adding and expanding the coverage of concrete materials properties in undergraduate and graduate courses and laboratories. The workshop program includes a tour of the Holnam Cement Plant in Canon City, Colorado and presentations from industry partners, including PCI.

For more information, contact: James Lingscheit, Director of Industrial and Educational Programs, ACBM Center, Northwestern University, 2145 Sheridan Road, Suite A130, Evanston, Illinois 60208. Tel.: (847) 491-3858; Fax: (847) 467-1078; e-mail:acbm@nwu.edu;internet:http//www.civil.nwu.edu/ACBM/ufe2001.html, or Paul Johal at PCI headquarters.

Goldberg Receives Harold Williams Award

Donald G. Goldberg, senior vice president and chief engineer , received his organization's highest individual honor, the Harold Williams Award. Goodkind & O'Dea, of Rutherford, New Jersey, a subsidiary of The Dewberry Companies, headquartered in Fairfax, Virginia, presents this prestigious award annually to employees who consistently demonstrate excellence in managerial and leadership skills, quality work products, marketing skills, dedication to the firm and profession, integrity, and mentoring of young people.

Mr. Goldberg is actively involved in many professional associations and has been a long-time member of the PCI Bridge Committee.

PCI Design Awards Program Trophies for the Terraces at Riverfront Recapture in Hartford, Connecticut were presented at the Connecticut Chapter of the American Institute of Architects' Fifth Annual Joint Dinner Meeting of the Design and Construction Industry, February 13, 2001. From left to right: **Robert J. Vitelli,** Blakeslee Prestress, Inc., **Fred Brecher**, Brecher Associates, P.C., **James Burns**, Connecticut Department of Transportation, **Marc Nicol**, Riverfront Recapture Inc., **Joseph C. Marfuggi**, Riverfront Recapture Inc., and **Greg Oneglia**, O&G Industries. **Monica Schultes** (far right) Executive Director of the Mid-Atlantic Precast Association (MAPA), presented the awards. For details of this project, see Fred Brecher's cover story in the November-December 2000 PCI JOURNAL, pp. 30-43.

Wells Concrete Promotes Jacobson and Nelson

Wells Concrete Products Company, Wells, Minnesota, recently promoted **Gregg Jacobson** to plant manager, and **Paul Nelson** to erection manager.

Mr. Jacobson joined Wells Concrete Products Company in 1983 as a field engineer. In 1990, he was promoted to erection manager and held that position until now. Mr. Jacobson is a member of the PCI Erectors Commit-

(Continued on page 119)

KIMBERLY D. HINCKLEY
(1958-2001)

Kimberly D. (Fisher) Hinckley, long-time marketing manager at BERGER/ABAM Engineers, died suddenly March 16, in Tacoma, Washington at the age of 43.

A graduate of the University of Missouri with a degree in Journalism, Kim was an associate editor for the *Angus Journal* in St. Joseph, Missouri, and then continued her career as communications director for United Way of St. Joseph.

Kim joined BERGER/ABAM Engineers, Inc., Federal Way, Washington, as marketing manager in 1988. She was promoted to business development and communications (BCD) manager in 1993 to lead that newly created department. She became an integral part of the management team and was revered for her dedication and leadership to the firm. Kim's love for her BERGER/ABAM family was evident in her special efforts at recognizing and celebrating her relationships with her co-workers. She will be dearly missed.

Spancrete Stops Traffic at Milwaukee Police Station

Spancrete Industries, Inc., of Waukesha, Wisconsin, is providing a full range of precast concrete products for the new District Three Police Station & Communications Data Center's office building and attached parking structure located in Milwaukee, Wisconsin.

Precast beams and columns, comprising 2000 linear ft (610 m), and 136,000 sq ft (12600 m^2) of double tees, spandrels, insulated and non-insulated wall panels, architectural precast and hollow-core floor slabs will encompass 40 percent of the completed structure.

King David Lee, project manager for Grunau Project Development, said, "Time was of the essence and the Spancrete product line is both efficient and a time saver. The components are simplified. You can pre-manufacture, ship to the site and put it together like a giant jig saw puzzle."

The Zimmerman Design Group is the architect of record, C.D. Smith Construction, Inc., is the general contractor. The 196,526 sq ft (18260 m^2) facility is scheduled for completion by September of 2001.

(Continued from page 117)

tee. He is a certified PCI field auditor and a registered professional engineer in the state of Minnesota.

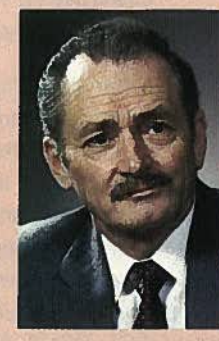
Paul Nelson began employment at Wells Concrete Products Company as a field engineer in 1997. He was promoted to project engineer in 2000. Mr. Nelson is a certified PCI field auditor and engineer in training (EIT).

Merck Pharmaceuticals Finds RX for Research Building

Merck Pharmaceuticals chose Schuylkill Products, Inc., Cressona, Pennsylvania, to produce architectural precast concrete panels for their new Multiple Scale Organics research building located at their Rahway, New Jersey campus.

The 72 wall panels have a brick appearance, giving "an image of relief around three sides of the building," said Jack McCallus of Schuylkill Products. Ranging in size from just over 3 x 20 ft (0.91 x 6.10 m) to about 6 x 20 ft (1.83 x 6.10 m), the wall panels also matched the color of the surrounding buildings by using pigmented concrete in the fabrication of the panels.

NORMAN WILLIAM BUNN (1922-2001)



Norman William Bunn, of West Vancouver, British Columbia, Canada, died February 18, 2001 at the age of 78.

Norman graduated from the University of Alberta in 1950 and went on to a lengthy and notable career in the prestressed concrete industry. Norman and his good friend George Adam are credited with building the first prestressed concrete bridge in Canada.

Norman left his roots in the prairies and moved his then young family to Vancouver to found Superior Concrete Products, which manufactured structural and architectural products throughout British Columbia. The Rogers Pass snow sheds are a long standing testimony to this era. Norman was a past president of the North Vancouver Chamber of Commerce and participated on many committees with CPCI, PCI and FIP.

In the late sixties, he founded Dyform Engineering/Dycore Systems with George Putti and together with son, Chris, took the company's services and products internationally. Following the sale of Dyform, Norman remained active in the industry and provided volunteer engineering services to underdeveloped countries through CESO.

Norman lived life to its fullest; he travelled extensively, he valued his many friends around the world, he was a great believer in following one's dreams, and his enthusiasm was contagious.

Ever the gentleman, he will be missed by his family, as well as his countless friends from the Provinces of Canada, the United Kingdom and the United States.

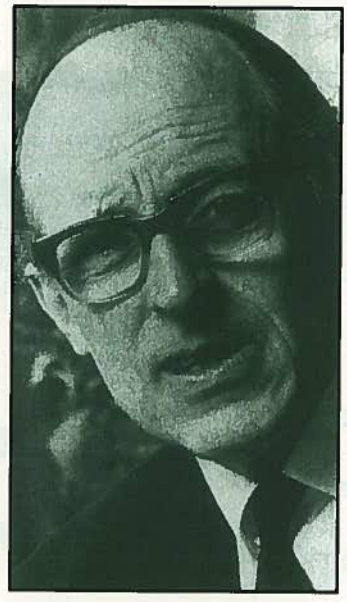
SIR ALAN J. HARRIS (1916-2000)

Professor Sir Alan J. Harris, world-renowned structural engineer and prestressed concrete pioneer, died on December 26, 2000 at the age of 84 in London, England. He was widely regarded to be one of the most talented and perceptive engineers of the latter half of the 20th century. He will be particularly remembered for his pioneering efforts in promoting and developing prestressed concrete in the English speaking world and for his teaching skills in expounding the need to link theory with practice.

During World War II, he served his country as a military engineer, landing in Normandy, France on D-Day +1 (June 7, 1944). Working with a fleet of French fishing boats, he was later awarded the Croix de Guerre for his bravery.

Attracted by the new technology of prestressed concrete, he went to Paris where he joined Eugéne Freyssinet at La Société Technique pour l'Utilisation de la Précontrainte (STUP), which was a subsidiary of the company Campenon Bernard. There, he gained first-hand knowledge from his mentor Freyssinet, generally regarded as the inventor and "father" of prestressed concrete. In 1949, he returned to England where he became chief engineer and then managing director of Prestressed Concrete Co. Ltd, a Freyssinet Licensee.

With structural steel in short supply in post-war Britain, he found ample use for the application of prestressing in buildings, bridges, reservoirs, jetties and other types of structures, and particularly triangulated truss beam systems for schools. In the late fifties, he formed



his own consulting firm, Harris & Sutherland, which soon became a world-recognized firm in prestressed concrete structural design.

Mr. Harris traveled extensively throughout the world. A long-time PCI Professional Member, in the 1960s he made some memorable presentations at PCI Conventions and also had his papers published in the PCI JOURNAL. One of these papers ("Prestressed Concrete Pressure Vessels for Nuclear Power Stations") won for him the 1966 Martin P. Korn Award.

Always interested in furthering the structural engineering profession and particularly technical education, in 1973 he was appointed Professor of Concrete Structures and Technology at Imperial College where he continued as Emeritus Professor in 1980. He also served as president of the Institution of Structural Engineers. He was the recipient of numerous awards, including the Gold Medal, Ordre du Mérite as well as a Commander of the British Empire (CBE) and Knighthood from Queen Elizabeth.

Noted for his wit and story telling, he also made some profound statements such as, "Let the subconscious take over." In other words, no matter how difficult the problem may be, sleep on it. In the morning, everything will seem much more straightforward and logical.

Paraphrasing Shakespeare, "Farewell, Sir Alan, and let choirs of angels sing thee to thy rest."

[GDN]

The Harris Cocktail

You take a generous measure of routine engineering
Shake it thoroughly
Blend it smoothly with a large measure of common sense
Introduce a good measure of lateral thinking
Add a few drops of originality
And serve with a touch of flair
That is a Harris Cocktail!