LETTERS TO THE EDITOR

Principles and Practices of Stud Welding

Harry Chambers’ article on stud welding (September-October PCI JOURNAL, pp. 46-58) is a very comprehensive and informative piece of work which will be very helpful to the precast concrete industry both as a working document and a valuable reference source.

Kenneth Conway
Memphis, Tennessee

I read Harry Chambers’ article “Principles and Practices of Stud Welding” in the September-October PCI JOURNAL and found the material very informative. When I was first introduced to stud welding in 1974, there were different t/d ratios (diameter of stud to base metal thickness) for headed studs (0.5) and dowel bar anchors (0.66). These recommendations on t/d ratios were from the stud welding equipment manufacturers (not Nelson Stud Welding, Inc.).

In this article, the author mentions a t/d ratio of 0.33. I would ask whether there should be a t/d ratio difference between headed anchor studs and deformed bar anchors. I also agree with the PCI recommendation of a t/d ratio of at least 0.5. The studs we use in the precast industry not only experience direct shear and tension, but combinations of both forces that may introduce a prying action to the stud-plate interface.

I recommend that PCI stay with a t/d ratio of 0.5 to accommodate prying action and plate deformation as stated in this article. I also think there must be an emphasis on quality assurance of stud welds. There should be a minimum number of bend tests per PCI recommendations. All ceramic ferrules should be broken off and each weld visually inspected during that ferrule removal process. Even with little inspection training, most people can quickly tell by visual inspection whether a weld is good or not.

The new stud welding equipment is very user friendly and once set up correctly for the first welds in the morning, they are designed to produce the same quality welds throughout the day. These welds are paramount for the structural integrity of our connections. There should be an emphasis on proper inspection of the work to ensure good weld quality.

Pat Hynes
Morse Bros.
Prestressed Concrete Group
Harrisburg, Oregon

The author wants to thank Mr. Hynes for his remarks, including the base plate thickness-to-stud diameter ratio. This was changed in the Fifth Edition of the PCI Design Handbook. Prior to that publication, the ratio was that the base plate thickness should be at least t/d ≥ 0.66.

Furthermore, his recollections of the ratios in the 1974 publication by a then existent stud manufacturer were very close. Their publication, “Structural Engineering Aspects of Headed Concrete Anchors and Deformed Bar Anchors in the Concrete Construction Industry,” published in 1974, used the following ratios:

- Headed Anchors: t/d ≥ 0.68
- Deformed Bar Anchors: t/d ≥ 0.88

Nelson’s published minimum plate thickness specification at that time was t/d ≥ 0.4.

The t/d ≥ 0.33 stud diameter figure is mentioned as a minimum ratio which is capable of developing full stud strength without tearing a hole in the base plate material. This figure was confirmed in a paper, “Shear Strength of Thin Flange Composite Specimens,” by C. G. Goble, AISC Engineering Journal, April 1968, pp. 62-65, where a t/d ≥ 0.277 shifted the failure mode from flange pull-out to stud shear.

It is entirely possible that a high strength stud such as a deformed bar anchor welded to a weak base material and subject to repetitive loads, combined loading or prying action may pull a hole in a base plate of this t/d ratio. It is also entirely possible that a high strength structural steel plate of this ratio will fail in the stud shank or across the fillet when subject to the same loadings.

[Responded by Harry A. Chambers
Nelson Stud Welding, Inc.
Elyria, Ohio]

New Appointments to PCI Committees

The following individuals have recently accepted appointments to PCI committees. We appreciate their interest and voluntary participation.

- **ATLSS and PRESSS Committee**
  - Richard Sause
  - Lehigh University
  - Bethlehem, Pennsylvania

- **Journal Advisory Committee**
  - Franklin S. Kurtz
  - Precast/Prestressed Concrete Institute
  - Chicago, Illinois

- **Plant Safety Committee**
  - Charles Capitano
  - The Shockey Precast Group
  - Winchester, Virginia

- **Bridge Design Manual Committee**
  - R. Jon Grafton
  - Pomeroy Corporation
  - Perris, California
September 11 Terrorist Attack on America

I have read many editorials on the September 11 terrorist attack on America and especially the structural cause of the collapse of the World Trade Center twin towers. Your Chairman's Message in the September-October PCI JOURNAL (page 13) has the best analysis of them all. By watching TV news rerun the chilling footage of the disaster, it seems apparent that the intense heat and rapid rise in temperature, created by the jet fuel fire, softened the steel columns to the point where they buckled and triggered the progressive collapse of the towers.

Peter Marshall
Toronto, Ontario, Canada

Your editorial on the chain of events leading to the collapse of the World Trade Center twin towers is right on target (September-October PCI JOURNAL, page 13). In retrospect, the general consensus now is that the force of the plane's impact alone was not sufficient to topple either tower. Rather, it was the intense fire fed by approximately 200,000 gallons of jet fuel, burning at up to 2000°F, that weakened the steel columns until they ultimately buckled.

Steven Sanford
Phoenix, Arizona

The Chairman's Message in the September-October issue of the PCI JOURNAL (page 13) is an insightful account of the events surrounding the September 11 attack on the World Trade Center twin towers. Once the steel columns buckled due to the intense heat caused by the plane's fireball, all it took was a single 4.5-million pound upper floor dropping onto the floor below to start the chain reaction that rapidly brought down both towers. Multiply that load by the weight of thirty or more stories above that floor and it becomes apparent that no building could be designed to withstand a force of that magnitude. It has been reported that a physicist at Swarthmore College in Pennsylvania has estimated that the two crashes, explosions, fires and collapses together released nearly one-tenth as much energy as the atomic bomb dropped on Hiroshima during World War II.

Peter Snyder
Atlanta, Georgia

I enjoyed reading your very thoughtful editorial on the cause of the failure of the World Trade Center twin towers (September-October PCI JOURNAL, page 13). The question might well be asked whether reinforced concrete columns in place of structural steel columns would have prevented the collapse of the towers. Nobody really knows the answer to that question, but certainly the case can be made that concrete columns would have allowed the occupants of the building more time to escape.

James Harris
Miami, Florida

The September-October Chairman's Message is a very eloquent essay on the probable cause of the World Trade Center twin tower collapses (see page 13). Once the exact reason of the collapses is determined, a concerted effort must be made to reevaluate the manner in which important high rise buildings are designed. The focus will be on structural integrity and redundancy, fire resistance and life safety, building materials and code regulations. The ideal scenario would be to design a building with an exterior skin so strong that it would simply deflect the impact of an incoming plane or missile. Unfortunately, such a building would be prohibitively expensive to design and construct and, furthermore, would likely make the structure look like a fortress rather than a habitable people-friendly building!

John Towers
Houston, Texas

The Technical Activities Committee (TAC) (C. Douglas Sutton, chairman) had a brief afternoon meeting at the PCI Convention in Reno, Nevada, October 23. The following summarizes the major actions taken and reports discussed:

- TAC approved, with minor revisions, the publication of the report, "User's Guide for Handling, Storage, and Erection of Prestressed Concrete Poles." This report was developed by the PCI Committee on Prestressed Concrete Poles (Fouad H. Fouad, chairman).
- The Standard Connections Manual (Jagdish Nihawan, chairman) is essentially complete and ready for balloting by the committee. After final revisions have been made, the report will be submitted to TAC for review.
- Work on the new Seismic Design Manual, authored by Ned Cleland and S. K. Ghosh, is progressing. The development of this publication is a three-year project.
- The Building Code Committee (Leslie D. Martin, chairman) has historically focused on the ACI Building Code. Now, it will also turn its attention to fire issues. The majority of the committee's work in 2002 will be to upgrade the "PCI Standard Design Practice" document so that it complements the 2002 edition of the ACI Building Code.
- It was reported that some 66 tests on headed studs have been completed at Wiss Janney Elstner Associates. Recommendations on stud design are gradually emerging from this research, which will be very useful for inclusion in the forthcoming Sixth Edition of the PCI Design Handbook. The status of various test programs for precast paving slabs was discussed. The Ureteck project at Dulles International Airport near Washington, D.C., has been in place since June on an active runway and has performed well to date. The Colorado DOT has two sections of highway that have been installed for six months and are ready to put in a third section. It
appears that Caltrans is also close to signing with Ureteck for another test section. The Federal Highway Administration (FHWA) sponsored program with the Texas Department of Transportation and the University of Texas is being installed this month, and preliminary results should be expected early next year. Prof. Neil Hawkins is leading a project at the University of Illinois Research Center in Champaign-Urbana, which has been funded by the FAA. They have a demonstration project installed at St. Louis Airport. Also, design has been completed for the Dallas/Ft. Worth International Airport and is awaiting approval. The New York Freeway Authority has just agreed to install a four-acre section of highway pavement for testing.

R&D COMMITTEE NEWS

PRESSS/Seismic Seminars Scheduled

A special PRESSS Advisory Committee meeting was held on November 26 at PCI headquarters. The meeting was planned to discuss the topics to be presented at the upcoming National PRESSS/Seismic Seminars in 2002, which are scheduled as follows:

- Seattle, Washington — January 30
- Atlanta, Georgia — February 1
- Chicago, Illinois — March 5
- Boston, Massachusetts — March 6

The topics include seismic code issues related to precast concrete structures, the PRESSS research program and the innovative displacement based design approach, and design of precast concrete frame and shear wall structures using the current practice and the newly developed PRESSS structural systems. The seminars will also include discussion of some significant changes in the new IBC 2000 that are likely to affect precast producers in most seismic zones.

PRESSS Research Codification Process Under Way

PCI is concurrently pursuing two options for the PRESSS Research

CALL FOR NOMINATIONS – DISTINGUISHED EDUCATOR AWARD

The PCI Student Education Committee (Alvin C. Ericson, chairman) invites nominations from PCI members for PCI’s 2002 Distinguished Educator Award. The objective is to recognize distinguished educators in the fields of engineering, architecture and construction technology who have made significant contributions to the precast/prestressed concrete industry. Nominations must be received at PCI headquarters by March 11, 2002. For nomination forms and additional information, contact PCI’s Research Director, Paul Johal, at (312) 786-0300.

NOMINATIONS FOR FELLOWS OF PCI

It's not too early to begin thinking about nominations for Fellows of PCI for 2002. The Fellows Award is intended to honor current or former PCI Members for outstanding contributions to the precast, prestressed concrete industry and to PCI. Candidates for the award must be, or have been, either employees of Producer or Associate Member firms, Professional or Affiliate Members, or retired PCI Staff. Candidates must have been active in one or more of these membership categories for at least ten years to be considered. Nominations should be submitted to PCI Headquarters on the official application form by April 30, 2002 to be considered for the 2002 awards. Application forms are available on request from PCI.

CALL FOR ENTRIES – ENGINEERING STUDENT DESIGN COMPETITION

The PCI Student Education Committee (Alvin C. Ericson, chairman) is inviting entries from engineering students to participate in PCI’s Engineering Student Design Competition for the year 2002. With the help of local PCI Producer Members, students will construct and test 8 x 10 in. x 14 ft (203 x 254 mm x 4.3 m) precast concrete beams. The awards program, sponsored by Sika Corporation, will include cash prizes for the most efficient design, highest load capacity, best report and other categories. Applications are due at PCI headquarters by March 1, 2002 and results by June 1, 2002. PCI Producer Members are urged to encourage their local engineering schools to participate in this program. For additional information and application forms, contact PCI Research Director Paul Johal at (312) 786-0300.

CALL FOR ENTRIES – ARCHITECTURAL STUDENT DESIGN COMPETITION

The PCI Student Education Committee (Alvin C. Ericson, chairman) is inviting entries from architectural students to participate in a new PCI Architectural Student Design Competition for the year 2002. The awards program, sponsored by AXIM Concrete Technologies, Inc., will include cash prizes for the best design and several other categories. Applications are due at PCI headquarters by March 15, 2002 and entries by June 15, 2002 at PCI headquarters. PCI Producer Members are urged to encourage their local architectural schools to participate in this program. For additional information and application forms, contact PCI Research Director Paul Johal at (312) 786-0300.
Cleghorn Retires From Gate Construction Materials Group

Ben "Benny" L. Cleghorn has retired from his position as chief operating officer of Gate Construction Materials Group and president of Gate Concrete Products Company in Jacksonville, Florida.

His 37 years of experience include road and bridge building with an emphasis on prestressed concrete. Mr. Cleghorn's prerequisite for a successful business has been to treat customers with respect and integrity, and deliver their products in a timely manner.

Under Mr. Cleghorn's leadership, Gate Concrete has provided precast, prestressed concrete members for most of the bridges in northeast Florida, marine and building structures at the surrounding naval installations, Jacksonville's Automated Skyway Express, and the Florida Times-Union Center for the Performing Arts. In 1998, Gate Concrete manufactured the longest bridge beam [183 ft (56 m)] in the United States.

In 1980, Gate Petroleum Company of Jacksonville, Florida, acquired its first non-petroleum division, Gate Concrete Products. It was at that time that Gate Construction Materials Group was formed. For over 21 years, Mr. Cleghorn was instrumental in expanding the group to five operating divisions with nine manufacturing plants. He was active in the group's most recent acquisition of three Universal Concrete facilities in Savannah, Georgia, and Kissimmee and Sarasota, Florida.

Mr. Cleghorn is a long-time member of PCI and the Florida Prestressed Concrete Association and has served as director and chairman of the Florida Department of Transportation Liaison for five years.

"Benny has been an integral part of the total company and the concrete industry. He will be sorely missed," said Joe Luke, chief executive officer of Gate Construction/Land Division.

Earl Shimp has been promoted to president of Gate Concrete Products and general manager of the Jacksonville plant. He is now responsible for all aspects of the plant, including sales, engineering, administration and production.

and Neil Hawkins, feel very confident that they can achieve these important objectives through their strong efforts and PCI support.

Education Subsidies Approved for 2002

The Student Education Committee reports that the free distribution of PCI Design Handbooks (hardcopy or CD-ROM) and Architectural Manuals will continue into 2002 to students enrolled in civil engineering and architectural design courses. The committee has an allocation of 2500 Design Handbooks and 1000 Architectural Manuals to be distributed during 2002.

Also, the Hollow-Core Committee provides PCI's Hollow-Core Manual at no charge to all students who order the Design Handbook. The Committee will also continue the free distribution of the Bridge Design Manual to professors teaching relevant courses at various engineering schools.

In addition, PCI's videos on "Architectural Precast Concrete: The Solution of Choice for Shaping the Future," the Aurora Justice Center, and hollow-core floors and walls are free to universities for educational purposes. The hollow-core video, titled "Hollow-Core Floors and Walls: Building Materials for the 21st Century," outlines the advantages and benefits of hollow-core products and presents various possibilities for their use.

LEAP Software provides a free design package and SmartCAD has offered their software at no charge to all students who receive the PCI Design Handbook.

All state and regional associations are encouraged to take advantage of these opportunities provided by PCI. These programs have proved to be very popular among students and professors. Contact Paul Johal at PCI for more information.

Battles to Be Awarded ACI Medal

PCI President Thomas B. Battles will be awarded the American Concrete Institute's Henry C. Turner Medal “for outstanding contributions to the concrete industry, especially in the field of precast and prestressed concrete.” The award will be presented at the General Session of the ACI Convention in Detroit, Michigan on April 21, 2002.

New PCI Certification Brochure

A new Certification brochure titled “Certified Quality for People, Products and Performance” is available from PCI. This brochure profiles the three Certification programs offered by PCI: (1) Plant Certification for producers of precast/prestressed concrete works, (2) Field Certification and Qualified Erector program for erection of precast/prestressed concrete com-
PCI 50th Anniversary Approaching

A Fast Team has been formed to plan for PCI's 50th Anniversary celebration in 2004. Fred Heldenfels will chair the team that will meet during Committee Days this April to plan this special event.

2002 Concrete in Transit Awards

The Portland Cement Association invites entries for its Concrete in Transit Awards Competition. The biennial awards program honors excellence in the design and construction of transit and rail projects.

Eligible projects include guideway structures, station facilities, terminals and platforms—any transit-related construction project using concrete as a principal component. Both new construction and rehabilitation are eligible; projects must be completed in 2000 or 2001 in the United States or Canada. A panel of professionals will judge entries on the basis of creativity, aesthetics, economics and functionality.

Entry forms are available on PCA's Web site at www.portcement.org/transit or from Bill Kucera, Program Manager, Transit and Rail Systems at (847) 966-6200. Completed entries are due January 31, 2002.

Boral Announces New Admixture

Boral Materials Technologies, Inc., San Antonio, Texas, has created Boral SL, a viscosity-modifying admixture that allows for the production of self-compacting concrete (SCC). The benefits of Boral SL include: a high level of concrete flowability while maintaining a high level of segregation resistance; a smooth surface without vibration; compaction in areas that are difficult to vibrate; ability to work well in congested systems containing high pozzolan volumes; less labor; improved finishability; uniform compaction; reduction of internal defects; construction time and noise; and improved concrete construction health and safety.

John H. Bailey, Sr. (1916-2001)

John H. Bailey, Sr., "never really retired" chairman of the board of The Cretex Companies, Inc., Elk River, Minnesota, died October 19, 2001. He was 85 years old.

In his youth, Mr. Bailey frequently visited plant and office locations with his father, Leslie (L.D.) Bailey, "where concrete dust got under his skin." He shared his father’s love for cars and the building of roads and bridges.

After graduating from Carleton College, Northfield, Minnesota, in 1938, he studied economics at Wharton College. Soon afterward he joined his father and another partner, D. W. Longfellow, at the helm of the Cretex ship. He devoted the next 60 years of his professional career nurturing and strengthening Cretex.

During those years, as the American automobile industry grew, so did the need for roads and bridges, and Cretex flourished.

Mr. Bailey was also instrumental in the development of his community and was well known for his civic and volunteer work. He will be remembered for his enthusiasm, generosity, loyalty, and commitment to values. He will be missed by Cretex associates, friends and family.

[Contributed by Jean Bailey-Healy]
Grace Appoints New Sales Personnel

Grace Construction Products' Specialty Building Materials (SBM) unit, Cambridge, Massachusetts, has named Tony Vitale to the newly established position of director of sales for SBM North America. He will be responsible for leading the combined specified products and underlayments sales teams. Mr. Vitale joined Grace in 1984 and has held a variety of positions in the company. He holds a bachelor's degree from Harpur College and a master's in business administration from Ohio State University.

Grace Construction Products has named Mike Philipps as North American sales manager, concrete products. He will be responsible for Grace's sales organization, which includes concrete producer and specification sales. Mr. Philipps joined Grace in 1986 and brings extensive sales and management expertise to the position. In 1993, he received the Grace Salesmaster Award and is a past Grace Vision Award recipient. He holds a bachelor's degree in criminal justice from Niagara University.

Breeze Elected to the Senate of The University of Calgary for Canada

Paul C. Breeze has been elected to the Senate of The University of Calgary, a prestigious group that reports to the Board of Governors and sends reports to the Minister of Learning of Canada. Other duties of the Senate include enhancing the usefulness of the University, arranging for public meetings, radio and television programs, as well as acquiring and providing information on the University and its functions. The Senate also authorizes the conferral of honorary degrees for the University.

Mr. Breeze has served as vice chairman of the Canadian Technical Committee on Reinforced Concrete Design and vice president of engineering at Con-Force Structures. He joined Earth Tech in 1997 after serving as managing director of engineering for the American Concrete Institute in Michigan. He served PCI as a TAC member from 1983 to 1993 and presently is a member of the PCI JOURNAL Awards Committee.

Master Builders Strengthens Marketing

Master Builders, Inc., Cleveland, Ohio, has promoted Jim Greer to Texarkana region sales manager. He will supervise seven sales representatives and five dispenser service representatives in north Texas, north Louisiana, Arkansas and Oklahoma. Mr. Greer has been with Master Builders since 1995 at their Oklahoma City, Oklahoma location and will relocate to the Dallas-Fort Worth area.

Deborah Sill has joined the marketing communications and resources group of Master Builders as communications specialist. Ms. Sill will direct Web-based marketing activities, manage and direct the marketing communications activities for three product segment areas, participate in trade shows, and direct mail and advertising efforts. A graduate of Bowling Green State University with a bachelor's degree in science and technology, Ms. Sill is a member of the Professional Women's Council and is a 1997 BMA Bronze Tower Award recipient.

TLC Expands Structural Design Staff

Tilden Lobnitz Cooper (TLC) has named Hasan Arouri as a principal in their Orlando, Florida-based engineering firm. With more than 18 years of design and construction experience in the United States and Kuwait, Mr. Arouri is accomplished in the design of buildings and multi-span bridges, as well as in the use of a wide variety of structural materials. He holds a master's degree in civil engineering from Kansas State University and a bachelor's degree in civil engineering from the Indian Institute of Technology in Madras, India.

Parsons Brinckerhoff Names Govindaswamy Manager

Raja Govindaswamy has been named area manager for the Wichita, Kansas office of Parsons Brinckerhoff Quade & Douglas, Inc., the United States infrastructure arm of Parsons Brinckerhoff (PB). He will manage operations in the transportation and infrastructure markets in Kansas and Nebraska. Mr. Govindaswamy's 23 years of experience includes pioneering work in the development of precast/prestressed concrete and jointless bridges in the state of Kansas, including the two longest prestressed concrete bridges using high performance materials, and the development of bridge standards for statewide usage. He holds a master's degree in civil engineering from Kansas State University and a bachelor's degree in civil engineering from the Indian Institute of Technology in Madras, India.

Roger L. Jeffery has been appointed director of TLC's structural division. With more than 25 years in the industry, Mr. Jeffery has extensive
A long-time PCI member, Dr. Corley has served in leadership roles for numerous professional organizations, has authored more than 160 technical papers and books, and frequently lectures on the prevention of failures, effect of earthquakes, and design/repair of structures.

In 1995, Dr. Corley led a building performance assessment team to investigate the bombing of the Murrah Federal Building in Oklahoma City. He is presently leading the building performance team in the investigation of the World Trade Center towers collapse.

County Concrete Corp. Adds Another Hollow-Core Line

County Concrete Corporation, Marathon, Wisconsin, has added 10 and 12 in. (254 and 508 mm) sizes to their current line of 8, 12, and 16 in. (203, 305, and 406 mm) hollow-core slab depths. County Concrete was the first producer in the upper midwestern United States to manufacture precast hollow-core slabs in 16 in. (406 mm) depths. The company began manufacturing the new sizes at its Roberts, Wisconsin facility in September 2001.

Cretex Acquires Two Companies


PBM Concrete and Raider Precast Concrete are manufacturers of precast/prestressed concrete products for highway, commercial and industrial building products. They specialize in the construction of parking garages, office buildings, correction facilities, highway bridges and a variety of other structures.

John Nanna, president of Construction Products Group, said, "We're excited to add PBM and Raider to the Cretex family. This acquisition strengthens our ability to serve our existing customers and allows expansion of our product offerings and operations throughout the Midwest."

Prior to the acquisition, the Construction Products Group of the Cretex Companies consisted of three independently run companies: J.W. Peters & Sons, Inc., Burlington, Wisconsin; Iowa Prestressed Concrete, Inc., Des Moines, Iowa; and Cretex Sand & Gravel, Inc., Burlington, Wisconsin. These companies make up one of the Midwest's leading producers of structural precast concrete for parking structures, office buildings, stadiums, industrial wall panels and bridge beams. The Construction Products Group is also a leading supplier of sand, gravel, limestone, and custom crushing in the Wisconsin and Illinois construction materials market.

TDI Selected for Little Rock Parking Structure

Tulsa Dynaspan, Inc. (TDI) of Tulsa, Oklahoma, was recently selected by CDI Construction for a downtown parking structure in Little Rock, Arkansas.

A precast/prestressed concrete system will be used for this 920-vehicle parking structure, part of the Donaghey Project in downtown Little Rock. TDI is also currently erecting an 1178-vehicle parking structure adjacent to the Arkansas State Capitol for CDI Construction, as part of the Victory Project in Little Rock.

Grace Mexico Expands

Grace Construction Products, Cambridge, Massachusetts, has added a new cement additives and concrete admixtures manufacturing plant to its existing Darex manufacturing facility in Santiago Tianguistenco, Mexico. Built at a cost of $1.3 million, the expanded facility will serve its growing customer base in Mexico.

Robert Bettacchi, president of Grace Performance Chemicals, said, "The expansion of our Santiago facility underscores our commitment to Mexico. Enhancements to the facility will allow us to provide customers with increased technical expertise and field support."

Grace's Houston, Texas plant and

Corley Receives ASCE Honorary Membership

W. Gene Corley, vice president of Construction Technologies Laboratories, Inc., has been awarded the American Society of Civil Engineers' (ASCE) Honorary Membership, the highest honor bestowed by the society upon a civil engineer with acknowledged eminence in some branch of engineering or in the arts and sciences related thereto, including the fields of engineering education and construction. Dr. Corley received this award for his contributions to structural engineering, particularly for his research of earthquake and blast-damaged structures.
Toluca, Mexico storage facility had previously supported Grace Construction Products' customer base. The Santiago facility will enable Grace to more effectively meet time and product customization demands.

**Sika Opens Admixture Manufacturing Facility**

Sika Corporation, Lyndhurst, New Jersey, held an open house to officially recognize the start-up of a new manufacturing facility in Fairless Hills, Pennsylvania, dedicated to the production of chemical admixtures for concrete. This is the second new U. S. admixture facility built by Sika in the past three years.

Production and shipment of products began over the summer of this year. This facility has storage capacity, rail access, and state-of-the-art mixing equipment. The potential production capacity approaches 10.5 million gallons (40 million liters) annually.

A. L. Patterson Company of Fallsington, Pennsylvania, purchased the property and erected two new buildings for their use as well as Sika’s. Patterson is a long-time distributor of Sika products and their own precast product lines.

**Sika ViscoCrete**

Sika has introduced two new products for Self-Compacting Concrete, ViscoCrete 5000 and ViscoCrete 6000. ViscoCrete 5000 is suited for both precast and ready mix applications, while ViscoCrete 6000 has been designed specifically for precast operations. ViscoCrete produces self-compacting concrete with workability levels in the range of 22 to 30 in. (560 to 760 mm).

**Master Builders Launches Glenium Admixture Line**

Master Builders, Inc., Cleveland, Ohio, has introduced the brand name Glenium, a new family of premium high-range water-reducing admixtures that can be modified to provide controlled setting time, high early strength development, improved workability, slump retention, pumpability, and finishability.

Within the family of Glenium admixtures are three series of products designed to offer specific functionality, depending on the needs of the concrete producer.

**Grace Launches New Website**

Grace Construction Products, Cambridge, Massachusetts, announces the release of its expanded global Web site, www.graceconstruction.com, which provides comprehensive product information.

**Oldcastle Covers Conference Center Erection Online**

Oldcastle Precast, Inc., Hatfield, Pennsylvania, is showing the erection of the various components for the new, all precast concrete Scranton, Pennsylvania, Conference Center live on their Web site at http://precastzone.com. A remote site camera has been placed on the construction site to monitor the work. New pictures are uploaded every 30 minutes. Viewers can observe a variety of structural precast concrete products as they are erected and connected for the new 150,000 sq ft (14000 m²) building.

The downtown center is being constructed by the design-build team of W. H. Lane, Inc., general contractor, Highland Associates, Ltd., architect, and Oldcastle Precast, Inc., Hatfield, Pennsylvania, precast concrete fabricator. The precast members will be fabricated at the Oldcastle plant in Manchester, New York.

**Grace Launches New Website**

Grace Construction Products, Cambridge, Massachusetts, announces the release of its expanded global Web site, www.graceconstruction.com, which provides comprehensive product information.
Nitterhouse Provides Precast Wall Panels for Corporate Park and Distribution Center

Nitterhouse Concrete Products, Chambersburg, Pennsylvania, provided the precast concrete for Building No. 105 in the Rockefeller Group Corporate Park, located in Florham Park, New Jersey. The project consists of a three-story, boomerang-shaped office building with 150,000 sq ft (14,000 m²) of space. It required 50,000 sq ft (4,600 m²) of architectural precast concrete panels in 176 pieces.

John M. Jones, senior vice president at Nitterhouse said, “By being included in the project during the initial planning stage, we knew the owner’s goals and could make suggestions that ensured we would fabricate precast pieces that exploited their full potential.” Jones added that this type of early consultation can save as much as 10 to 15 percent in precasting costs.

By bringing Nitterhouse in during the earliest design meetings, the construction team gained the advantages of ideal panel size, panel repetition, efficient connections, cost-effective finish, a better lateral-load-resisting system, and faster scheduling.

Michael Distribution met a tight deadline for its new 650,000 sq ft (60,000 m²) distribution center in Aberdeen, Maryland, due in part to the use of insulated precast concrete sandwich wall panels produced by Nitterhouse Concrete Products.

The center receives daily deliveries from a consumer-goods company and distributes them for transport to retail stores. The company required fast turnaround for the center, and with winter approaching, the designers knew that precast concrete panels would offer the best solution.

“The schedule was the driving factor,” explained Jeff Harbold, project coordinator for LSC Design, Inc. in York, Pennsylvania, the architectural firm. In fact, the facility sits adjacent to a center built with tilt-up concrete panels, added project manager Jan Wagner of Kinsley Construction Co., York, Pennsylvania, the general contractor. “The weather changed the design,” he said. “We felt we could guarantee the new schedule with precast concrete, since we essentially took the weather out of the considerations.”

The 9 in. (230 mm) insulated loadbearing panels met the state of Maryland’s requirements for energy efficiency with no added finishing. The adjacent tilt-up structure had to be lined with rigid board insulation after erection to obtain the needed R-value, which slowed its completion.

Incorporating a number of delivery-bay doors into individual panels enhanced construction efficiency, said Wagner. Although more than 100 doors were provided, additional knockouts were cast in the panels to allow for future expansion. Construction was sped up by using loadbearing panels, thus eliminating the need for perimeter columns. That also made the interior spaces more spacious, giving the owners an added benefit.
Master Builders and Scofield Form Colorful Concrete Alliance

Master Builders, Inc., and L. M. Scofield Company have signed a sales and marketing alliance agreement to expand the use of colored concrete throughout North America, where the demand for colored concrete is estimated at 4 million cu yd (3.1 million m³) per year, approximately one percent of total production. This figure is expected to grow three to five times within the next decade.

“This is an important market that offers ready mix and precast concrete producers an avenue to expand their operations, and increase the value of concrete as an attractive and functional design and construction option,” said Mike Shydlowski, president and chief executive officer of Master Builders. “With high quality colored concrete, we are providing architects and designers with cost-effective and durable alternatives to conventional wood, stone and brick building products.”

Phil Arnold, president and chief executive officer of Scofield said, “The extensive experience and depth of technical service and support offered through this alliance provides competitive advantages to concrete producers.”

Both companies will manufacture Chromix admixtures, the respected brand name admixture originally formulated by Scofield. A new line of liquid integral coloring admixtures, Chromix L, will be introduced early next year.

Mike Shydlowski, Master Builders, Inc. (on the left) and Phil Arnold, L. M. Scofield Company.
EXECUTIVE DIRECTOR
PCI Midwest

Key Objective for Position:
To educate the design community on the use of precast/prestressed concrete to ensure industry growth.

Position Duties:
- Assist PCI in completing a University curriculum for precast/prestressed concrete coursework
- Network with educators to influence them to conduct full quarter courses on precast/prestressed concrete
- Attend PCI National Conventions, Committee Days, and meet regional directors to compare program activities
- Update PCI Midwest members quarterly on current activities
- Attend and display at conventions, (i.e., School Board Convention, League of Cities Convention)
- Conduct box lunch workshops for designers and university students on the use of precast/prestressed concrete
- Join and participate in relevant industry associations and committees (e.g., ACI, AIA, CSI)
- Develop and maintain a budget for PCI Midwest activities
- Network for new ideas/projects and distributes leads to association members
- Recruit producer and associate members
- Benchmark PCI Midwest products' market share vs. similar products to measure association's success
- Report directly to the PCI Midwest Board of Directors
- Prepare a quarterly newsletter with assistance from producer members

Required Background:
- Knowledge of PCI Midwest products and services
- Organizational skills
- Communication skills

Send resume to:
John Saccoman
Moline Concrete
415 Lilac Street
Lino Lakes, MN 55014
Fax: (651) 786-0229

Schuylkill Supplies Precast Products for Ice Hockey Arena

Schuylkill Products, Cressona, Pennsylvania, has provided precast concrete products for a new ice hockey arena, the third at the Mennen Sports Arena complex in Morristown, New Jersey. The municipally owned facility serves a number of area high school teams and is also available for public skating.

This arena encompasses approximately 26,400 sq ft (2460 m²) and approximately 115 precast concrete pieces, primarily panels and columns, which are used for the exterior walls and one interior wall. The façade features several smooth form finished panels adjacent to it and others with field-applied brick detailing to match the existing structures.

In addition to fabricating the precast panels, Schuylkill also erected the precast hollow-core roof and floor slabs for the project. According to Dave Alonso, job superintendent with Crain Construction, “Precast concrete was selected because it can be produced and erected quickly.”

Walker Completes Detroit Airport Parking Structure

Walker Parking Consultants, Inc., Kalamazoo, Michigan, has completed construction on the Detroit Metro Airport Midfield Terminal Parking Garage. The 11,600 space parking structure is ready and within budget for the airport’s new midfield terminal scheduled to open in January 2002.

The parking structure, featured in the Spring 2001 ASCE magazine, uses precast, prestressed concrete double tees for the floors. The double helices at each end employ post-tensioned, cast-in-place construction. Shear frames resist lateral loads, providing a more open interior. Leading the design team was Walker Parking Consultants, Inc. The general contractor was a joint venture of J. S. Alberici Construction Co., Walsh Construction Co. and PBM Concrete Inc.
Spillman Develops Forms for Arched Station and Bridge

Spillman Company, based in Columbus, Ohio, has produced custom steel arched beam formwork for two unique structures. The first project was manufactured for Atlantic Pipe Corporation, Puerto Rico, at Spillman's Juana Diez facility near Ponce. The barrel roof beam was cast on edge in a three-piece formwork system with soffit and side rails. Overall, the span of the arch is 46 ft 4 in. (14.1 m) with a rise at the center of 9 ft 3 in. (2.8 m). The castings were 6 ft 6 in. (2.0 m) wide by 2 ft 3 1/2 in. (0.7 m) deep with a rise at the center of 9 ft 3 in. (2.8 m). The castings were used to provide curved roof structures for above-ground stations at the Tren Urbano in metropolitan San Juan. Initially, Atlantic Pipe had used the forms to produce segments for two different stations and is seeking future contracts as well.

Most recently, Spillman delivered an arched bridge beam form to Ross Prestress for the plant in Bristol, Tennessee for the city of Danville, Virginia. Ross will be using the form to produce more than 70 castings in seven different setups that will be as long as 74 ft (22.5 m). Each casting will be 6 ft (1.8 m) wide by 4 ft (1.2 m) deep and include specially designed back-forming to allow the precast arched beam segments to be post-tensioned in pairs and then used as stay-in-place formwork for the overall structure. This project was cast upright and included a bottom surface radius of 80 ft 8 in. (24.6 m), a span of 60 ft 6 in. (18.4 m) for half the arch at the center and a rise of 5 ft 10 1/2 in. (1.8 m). These U-shaped sections are each 6 ft wide by 3 ft 6 in. (1.8 x 1.1 m) high with 8 in. (203 mm) thick legs and slab.
Nitterhouse Provides Hollow-Core Slabs for Pleasant View

The residents at the Town Square at Pleasant View retirement community in Manheim, Pennsylvania can sleep soundly knowing they have Nitterhouse Concrete Products hollow-core slabs to enhance their safety. Furthermore, the owners know that they have an economical design that will meet their year-end occupancy schedule and a real estate investment that will hold its value into the future.

The project includes an addition to an existing 37 unit independent-living facility, a new 39 unit independent-living building with community spaces, and 39 new units added to the personal-care center. About 190,000 sq ft (17700 m²) of space are being added in areas using 8 and 12 in. (203 and 305 mm) SpanDeck hollow-core slabs for a combined floor and ceiling component.

“Structurally, hollow-core slabs offer the best and most economical design for residential projects like this,” said senior project manager Don Scruggs with the project’s architect, Noelker & Hull Associates in Chambersburg, Pennsylvania. “Speed of production and construction was also a consideration, since we had to erect the structures during the winter months.” Scruggs said that fire safety is always a concern when it comes to multi-housing facilities, and precast concrete’s inorganic composition addresses that concern.

“Precast concrete’s ceiling surfaces were sprayed with textured paint, and the floor side had a cast-in-place topping with some areas feathered to create a level surface,” noted Joe Kumer, vice president of operations at Consolidated Construction Co., in Lititz, Pennsylvania. “Overall, the product worked very well.”

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High Concrete Architectural and Structural Products Used for Academic and Pharmaceutical Parking Structures

The University of Delaware opened a two-level parking structure on Academy Street in Newark, Delaware this spring. High Concrete Structures, Inc., Lancaster, Pennsylvania, provided and erected both the structural and architectural precast concrete for the project.

According to Bob Reid, an architect with Tevebaugh Associates of Wilmington, Delaware, "Precast concrete is quick and easy to erect, and makes designing the architectural façade simpler because of factory-controlled production of the panels. The consistency in the aesthetic finishes is easier to achieve and maintain."

The spandrels feature a sandblasted architectural white concrete finish on the exterior components of the north and east sides. The south elevation features inset brick panels to match the 40,000 sq ft (3700 m²) office building being built directly adjacent to the structure. The west façade and the interior components are standard gray structural concrete with a precast form finish.

High Concrete filled the prescription for worldwide pharmaceutical giant Merck & Co.'s North Parking Garage, which offers 272,000 sq ft (25300 m²) of parking on nine levels. The construction of new research buildings on the site of Merck's operation in Rahway/Linden, New Jersey, created a need for additional parking. Merck senior project engineer Bill Micheludis said that precast concrete was chosen for its cost effectiveness and the fact that precast walls used for the stair and elevator tower could be clad with brick prior to erection, saving time.

Tim Haas & Associates of Blue Bell, Pennsylvania were the designers. Assistant project manager Todd Helmer said, "The addition of brick complemented existing and future building development." The brick was installed in the wall panels at High Concrete's Denver, Pennsylvania plant. The custom architectural panels feature bullnose shelves on top of which the brick is stacked. A combination of architectural reveals and rustications characterize the simple façade.