THE LOUISIANA CIVIL ENGINEER

ACADIANA BRANCH • BATON ROUGE BRANCH
NEW ORLEANS BRANCH • SHREVEPORT BRANCH
Journal of The Louisiana Section

Volume 10 • Number 4 August 2002

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Announcement and Registration for 2002 Louisiana Civil Engineering Conference and Show in Kenner September 12-13, 2002

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PUBLISHER:

Franklin Press, Inc., Baton Rouge, LA

The Louisiana Civil Engineer quarterly journal is an official publication of the Louisiana Section of the American Society of Civil Engineers with an average circulation of approximately 2000. The Section neither guarantees the accuracy of statements made nor necessarily concurs with the opinions expressed in this publication. Please submit letters to the editor and articles for consideration to be published by e-mail to jimporter@dotd.state.la.us, by facsimile to (225) 274-4160, or by mail to the Publications Committee c/o James C. Porter, PE • 2608 Terrace Avenue • Baton Rouge, LA 70806-6868.

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The Louisiana Section is located in ASCE Zone II, District 14. Zone II consists of Districts 6, 7, 9, 10 and 14. District 14 consists of the Louisiana, Mississippi, Alabama and Georgia Sections.

President's Message

Mark W. Snow, PE

Well the time has come for the annual swan song President's message. Generally, the President provides a compilation of this year's activities in the last message. However, since I have covered our activities in detail in the last two messages, I decided not to be redundant and ask you to refer to the last two President's messages for the summary of the Section's events.

With the conclusion of the Section Annual Meeting and Awards Banquet in New Orleans in September, my duties as President will officially end. I look forward to the transition with mixed feelings. While I will be happy to regain the time that I once had for personal and work related activities, there will be regret because of the unfulfilled goals and a little sadness that I will not get to see some of the friends that I have made over the years who will be rotating off of the Section Board. I look forward to serving as Past President next year. It will give me the opportunity to complete some of the unfinished tasks from this year and to assist the next Board in establishing and pursuing next year's goals and the resulting programs.

As it is customary but no less important and well deserved, I wish to thank this year's officers and committee chairs for the jobs well done. The credit for most of the Section's success during this administrative year is theirs. Please join me in thanking these energetic men and women who unselfishly sacrificed and gave of their time and talents to further the causes and programs of our society and profession. I also feel confident that next year's leadership will be as strong and as capable as any we have had and that they will continue the tradition of able, effective and professional leadership. I urge you to be willing to support them and to be prepared to participate in the Section's leadership if called on as you and your predecessors have been willing in the past.

As my term ends, I am happy to report that the Section is as strong as ever. It is financially sound. The Section and the branches have sponsored and/or hosted continuing education seminars and regular membership meetings that continue to meet the needs of our members, and the public outreach programs are developing and are as strong as ever. Our journal continues to be top notch and we now have a Section website that will serve as an important information and communication tool. Once again, these efforts and their success are due to those who volunteer and serve as leaders and participants.

The Section has a rare opportunity that I hope we are able take advantage of in the coming year. As most of you are aware, Thomas L. Jackson, PE, next year's National ASCE President, is also a member of the Section. I hope that we will use this connection we have through him to effectively project the Section's concerns and input to the National level when it is appropriate to do so. But let's not stop there. I also ask that you give Tom your support and prayers.

As I reflected back on this administrative year, many things came to mind. I thought about the many significant and not so significant events that had occurred in the world, in our country, in our society, and in our personal lives. Some of these events have brought great joy and pride while others have brought great pain and sadness. Some of the events seemed easily understood while others brought confusion.

I believe it is healthy to reflect on past events through the filter of time and draw from them the valuable lessons we can. So in the last words of this message, I beg for your indulgence to allow me to share some of my personal thoughts, beliefs and experiences and the lessons that I have drawn from them.

I believe that when selecting leaders and participants, whether it be for a political office, or a society or a club, that traits such as honesty, integrity, character, morality, competency and conviction truly matter. We should elect leaders who we believe care more about what is good for the whole of our organization and act on it accordingly rather than cater to the interests of just a select few individuals or pursue a selfish personal agenda. We owe it to ourselves to seek out qualified moral leaders and support them with our time, resources and prayers. We have learned recently that when tough times come and hard decisions must be made, we need individuals who judiciously use their power of conviction and wisdom to make the tough choices and who do not blindly depend on such things as opinion polls.

...when selecting leaders and participants, whether it be for a political office, or a society or a club...traits such as honesty, integrity, character, morality, competency and conviction truly matter...

I believe that we need to remain a nation *under God.* In the past few months, there has been great turmoil and debate on keeping these words in the Pledge of Allegiance to the United States. As I look back on the events of the past year, I shudder to think where we would be if not for the divine guidance that helped so many of us through the trauma of these events and comforted us in the aftermath.

While I agree that we need to remain a nation where freedom of religion is a matter of personal choice, I believe that our courts may be laboring under a basic misinterpretation of the original spirit and intent of the First Amendment. I believe its intent was to prevent our government from creating a state-sponsored religion. I do not believe that its intent was to keep religious beliefs and what is basically good about us as citizens from influencing our government and our public life. I believe that our government and laws were established and should continue to be influenced through our collective religious belief systems — not divorced from them.

I also believe that if we are to survive as a nation, we must care about the welfare of others and seek opportunities to help those in need and act on the opportunities. We must be involved with societies, activities and groups whose intent is to make the world a better place or correct a wrong. I remember a statement made by a Frenchman visiting the United States. He said that America is great because America is good and when America ceases to be good it will stop being great. Similarly, I believe that our collective goodness is one of the reasons we have been blessed. However, I also feel that if we lose our goodness and moral fortitude, then our culture and country will fall into decay. Therefore, I believe it is the duty of every American to help others and always do the right thing.

Well, I do not want to get any more preachy, but I am not ashamed of my beliefs and I felt led to share some of them with you not to offend but to *connect.* So in closing, I would like to again thank you for the opportunity to serve as your Section President and entreat you to give your support to next year's Section and Branch officers and committee chairs. I wish you, your companies and your families success and happiness in the coming year.

About the cover:

The high level bridge over Pass Manchac pictured once carried Louisiana state route US 51 and now carries the service road for interstate route I-55. It is an early example (circa 1957) of the use of prestressed concrete cylinder piles in bridge pile bents. They were marketed by the Raymond Pile Company and the subject of the early research work at Tulane University that included structural testing of full-size specimens. Their use was an outgrowth of the confidence gained in their structural integrity demonstrated by the Tulane research — the subject of the feature article in this issue. Editor's note — An aerial photograph of the partially collapsed main span of this bridge following a marine collision appeared on the cover of the August 1999 issue. It was in conjunction with the feature article in that issue, "Vessel collision vulnerability of bridges."

Tulane University: Pioneer in prestressed concrete

By Robert N. Bruce, Jr., PE

Introduction

There is a continuous thread of prestressed concrete research and development involving members of the Tulane family — faculty, students, alumni, and friends — that began, more or less, in 1937. The history of the research and development of precast prestressed concrete in America is as much about the individuals that pursued it as it is about the specific developments. The details of this history and its significance to the industry in general, and to Louisiana and the Tulane family in particular, is traced herein.

Chronology of prestressed concrete research

1937-1939 *the Raymond Concrete Pile Company initiates prestressed concrete research analysis and testing.*

Maxwell Mayhew Upson went to Europe in 1937 to satisfy his curiosity about a developing material application called prestressed concrete. It was concrete considered to be free of cracks because of initial precompression induced in concrete by embedded high strength steel tensioned to a high level of stress. On his return to the United States, Upson addressed his concerns relative to the possible corrosion of the high strength steel, and its ability to sustain the high level tensile stresses over a prolonged period of time. He did this by fabricating and placing precast prestressed concrete structural elements in the tidal zone of New York City harbor in 1939. This work was done by Upson's firm, the Raymond Concrete Pile Company — a distinguished international construction company for which Upson served as Chairman of the Board. There is reason to believe that the 1939 installation to determine the possible long-term effects on precast prestressed concrete elements marked the first structural use of prestressed concrete in America.

1940-1950 *Precast prestressed concrete sheet piling tested at Tulane.*

Upson's efforts to monitor the long-term behavior of precast prestressed concrete were interrupted by World War II, while the Raymond Company and its resources were refocused on the war effort. During this period, however, Upson correctly foresaw that a crackfree corrosion-resistant material could be successfully marketed in the offshore construction industry. As soon as hostilities ceased in the Gulf of Mexico and in the Caribbean Sea, including Lake Maracaibo, Upson launched an aggressive research and development program headquartered in New Orleans because of its close proximity to the offshore activities in the Gulf of Mexico.

Upson's decision to headquarter the research and development activities in New Orleans proved to be fortuitous for Tulane University. Almost immediately a natural team came together. Through the joint efforts of Walter E. Blessey, a Professor of Civil Engineering at Tulane; Henry F. LeMieux, the New Orleans District Manager for the Raymond Company; friends and colleagues from their university days at Tulane, and Upson some of the pioneering tests on prestressed concrete were conducted on precast prestressed concrete sheet piles in the laboratory of Tulane's Civil Engineering Department. The late 1940s and early 1950s have been described as the once-in-a-lifetime golden age of the beginning of prestressed concrete in America, and the results of Tulane's pioneering research gave impetus to this age.

1950-1960 *Post-tensioned segmental prestressed concrete cylinder pile tests at Tulane; prestressed concrete cylinder pile dynamic pendulum tests research; development related to world's longest bridge; prestressed concrete research related to offshore construction.*

In the decade following Tulane's pioneering effort, prestressed concrete gained rapid acceptance as a construction material, with hundreds of offshore structures being built of prestressed concrete in the Gulf of Mexico and in Lake Maracaibo. The Raymond Company had employed Robert N. Bruce, Jr., one of Professor Blessey's students, to participate in the development and marketing of the Raymond Company's prestressed concrete cylinder piles. These piles were marketed to be utilized in bridges, docks, breakwaters, and other marine structures. Notable structures to use prestressed concrete cylinder piles include the high-level bridge carrying Louisiana state route US 51 over Pass Manchac, the Lake Pontchartrain Causeway bridge, the Pensacola Bay Bridge, and the Chesapeake Bay Bridge-Tunnel Crossing.

The continuing research and development supporting the design and construction for these and other projects involved the Tulane engineering faculty, alumni, and students. In the same time frame, much of the Raymond Company's research, development, and analysis was conducted at Tulane utilizing its experimental test frame shown in Figure 1 and sponsored by the Society of Tulane Engineers in 1953.

Early research at Tulane involved flexural testing of prestressed concrete cylinder piles in connection with its proposed use in the Lake Pontchartrain Causeway bridge substructure, and shear testing of the same type of pile for its possible use by the Bay Area Rapid Transit Authority in San Francisco. As the Raymond Company's research interest continued, new interest was demonstrated by the Louisiana Department of Highways and the U.S. Bureau of Public Roads resulting in the use of prestressed concrete cylinder piles in the construction of the Pass Manchac bridge shown in Figure 2 and on the cover of this issue.

1960-1970 *Weapons effects on conventional structures; prestressed concrete shear behavior of 50ft pretensioned prestressed concrete bridge girders; prestressed stirrups in pretensioned prestressed concrete beams.*

In the 1960s, Tulane's civil engineering faculty embarked on a four-decade effort of prestressed concrete research, that continues to the present. Some of the initial research in this period was sponsored by the U.S. Department of Defense and it involved analytical research related to the effects of nuclear weapons on conventional structures located beyond the range of the immediate effects.

Reinforced and prestressed concrete were examined for their response to the effects of a nuclear detonation in terms of their shielding capacity, their ductility and toughness in resisting blast and ground shock loads, and their structural behavior resulting from the thermal effects. Part of the nationwide research included a continuing effort led by Tulane's School of Engineering which included experts from the Universities of Minnesota, Wisconsin, and Miami.

The philosophy of testing prestressed concrete at Tulane evolved around Belgium's famous Professor Gustave Magnel, who stated, "If you want to derive meaningful conclusions, perform your tests on real big beams, not toys of 3' or 4' long, 2" or 3" deep, which I call confidential beams." Magnel had spoken at Tulane in 1954, and the influence of his observation remained. Consequently, the investigation of shear behavior of prestressed concrete bridge

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Robert N. Bruce, Jr., PE, earned his BS and MS degrees in Civil Engineering from Tulane University and his PhD from the University of Illinois. After initial employment in industry Bruce returned to Tulane where he is a professor in the Civil Engineering Department. He currently holds the Catherine and Henry Boh Chair in Civil Engineering at Tulane. Bruce has received numerous honors and awards for his accomplishments in engineering, including the Prestressed Concrete Institute Martin Korn Award, the Engineering News-Record Medal for Research, the Louisiana Engineering Foundation Professionalism Award, the Federal Highway Administration Plaque of Recognition and the Society of Tulane Engineers Award for Teaching Excellence. Editor's note — This article was adapted from the author's Catherine and Henry Boh Lecture paper titled "Tulane University Pioneer in Prestressed Concrete" scheduled to be presented in September 2001.

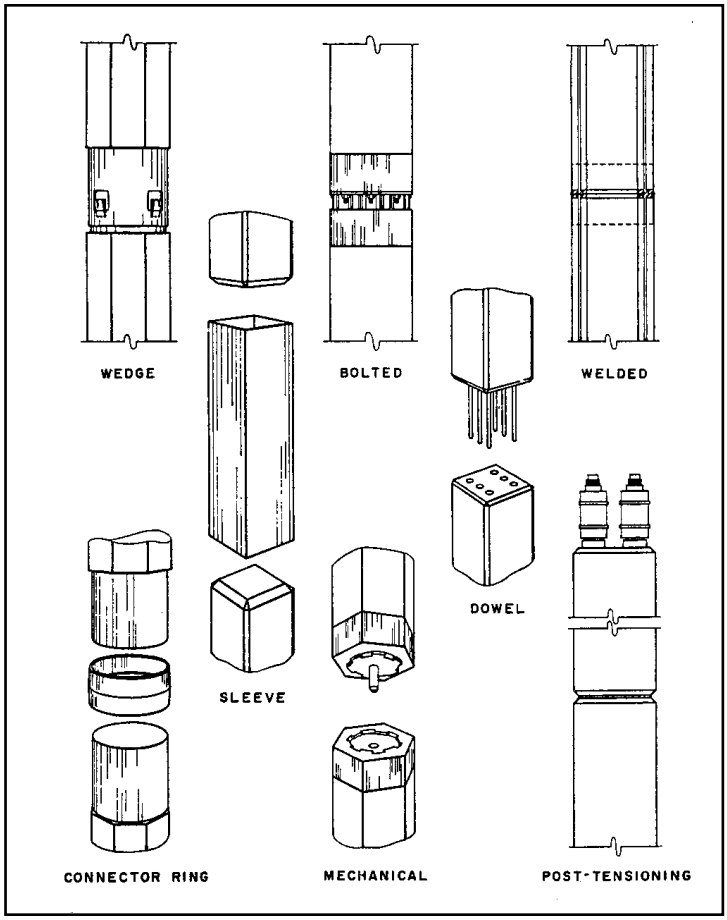

Figure 1. (Top Left) Type III test girder in the experimental test frame at the Tulane testing facility. Figure 2. (Bottom Left) State route US 51 high-rise bridge over the navigable channel at Pass Manchac. Figure 3. (Right) Basic types of pile splices available.

girders was initiated involving the testing of 50' full-size prestressed concrete girders weighing 15 tons each. The girders were tested in flexure and shear, with loads applied by hydraulic jacks reacting against Tulane's experimental test frame as shown in Figure 1.

An interesting aspect of this research was that the test specimens were prestressed vertically as well as longitudinally in an attempt to increase their shear resistance. Thirteen specimens were tested, leading to methodologies for the prediction of shear strength, and leading to the conclusion that vertical prestressing did not increase the strength of the tested specimens.

Tulane engineering students involved in this project included John J. Housey Jr., John C. Stone III, Jack H. Rau, and David P. Gustafson. Gustafson is presently Vice President of Engineering for the Concrete Reinforcing Steel Institute located in Schaumburg, Illinois.

1970-1980 *Blanketed prestressing steel strands in 50' pretensioned prestressed concrete bridge girders; analysis and testing of driving splices in pretensioned prestressed concrete piles; fatigue behavior of pretensioned prestressed concrete girders.*

In the 1970s, several major research investigations ensued. One project involved exploring the feasibility of eliminating the need for draped strands in prestressed concrete girders by using straight strands with certain unbonded or *blanketed* lengths from the ends of the girder creating so-called *phantom* draped strands. The effect of the phantom draped strands on the flexural strength and behavior of the test girders was the essence of the investigation. Nine girders were tested; 6 halfscale girders at 34' in length, and 3 full-size girders at 50' in length were fabricated and tested.

Students involved in the project included Charles H. McGee, Daniel B. Nash, Steven Criste, David Hebert, Rodney Vincent, and John Dane III. Dane is presently serving as President and Chief Executive Officer of Trinity Yachts, LLC.

Concurrently with the project exploring the feasibility of eliminating the need for draped strands was an investigation into driving splices for prestressed concrete piles. It involved the analysis of the 20 different types of pile splices then available on the international market of which the basic types are demonstrated in Figure 3. Certain of these splices were selected for testing. As a result of the investigation, three specific pile splices — the Herkules mechanical splice, the Anderson sleeve splice, and the dowel or the cement-dowel splice schematically demonstrated in Figures 4, 5 and 6 respectively — were recommended to the Louisiana Department of Highways and to the Federal Highway Administration for use as driving splices in bridge construction. The recommendation was predicated heavily on providing a *driving* splice where the splice is made during a pause in the pile driving operations where the first pile segment is driven before pausing to make the splice.

The Tulane students involved in the investigation included John Dane III, Gerald W. Hanafy, Charles H. McGee, Robert J. Motchkavitz, Daniel B. Nash, and David C. Hebert. Hebert is presently the Vice President and Chief Ports Engineer for CH2M Hill in Santa Ana, California.

Since all of the tests at Tulane up to this time performed on the prestressed girders had been static loads, it was recommended to the sponsors that repetitive load effects be investigated to simulate highway bridge traffic and eliminate concerns about possible fatigue failure. These tests involved 50' full-size girders subjected to 5 million cycles of repeated loading between dead load and dead load plus live load to determine the effect on fatigue and strength behavior of the bond transfer zone for the blanketed strands. The proposal was accepted and funded by the Louisiana Department of Transportation and Development, and by the Federal Highway Administration.

Since Tulane's experimental test frame was located outside and it was desirable to have an inside testing facility to control temperature, humidity, and other environmental conditions to accommodate the sensitive instrumentation required for fatigue testing, an agreement was

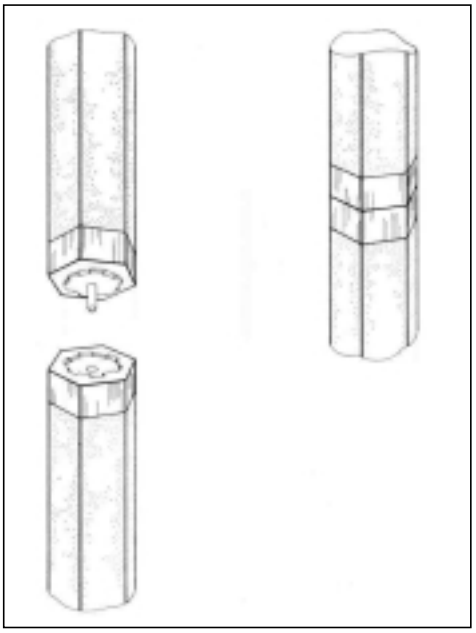

Figure 4. Mechanical pile splice.

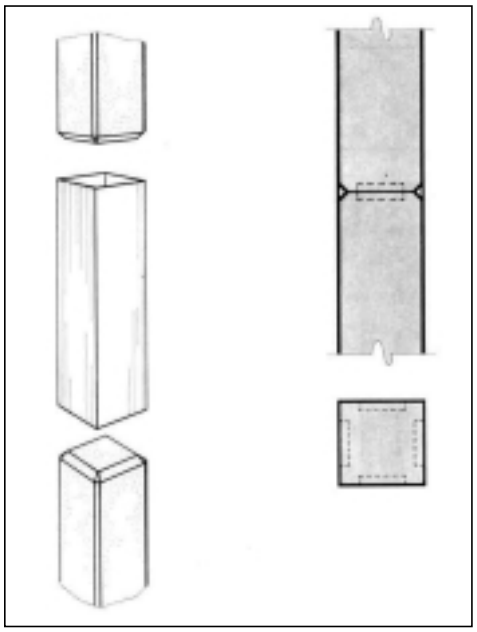

Figure 5. Sleeve pile splice.

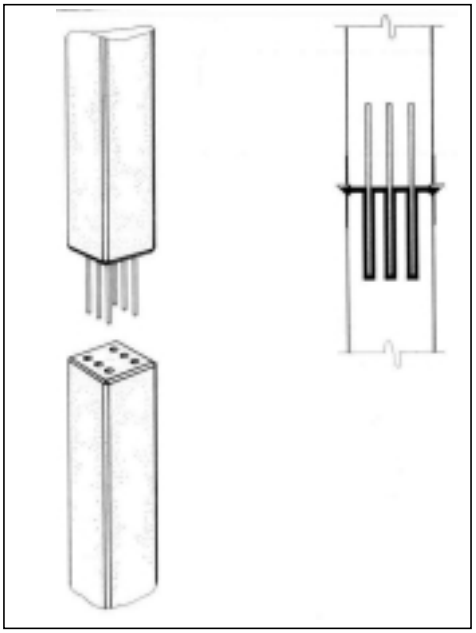

Figure 6. Dowel or cement-dowel pile splice.

reached between Tulane and the Portland Cement Association to use the PCA's Construction Technology Laboratories in Skokie, Illinois. This resulted in a close collaboration between Tulane and PCA/CTL that has lasted 25 years.

The project involved fatigue tests of full size prestressed concrete girders that were a direct outgrowth of the static tests conducted at Tulane by Dane and Bruce. There were 6 full size 50' girders fabricated and tested in the PCA/CTL laboratory as shown in Figure 7 to determine the effect of repetitive loading on the fatigue and strength behavior of girders with either draped or blanketed strands.

The research indicated that blanketed strands could be used successfully, but also recommended that further research was needed to determine fatigue properties of strands. This project was recognized nationally by receiving the Martin P. Korn Award for research from the Prestressed Concrete Institute.

1980-1990 *Fatigue behavior of pretensioned prestressed concrete bridge girders; intermixed steel and prestressed concrete bridge girders; prestressed concrete piles spliced with ABB splice units; fatigue life of partially prestressed concrete bridge girders.*

Tulane was involved in a new investigation of the fatigue behavior of prestressed concrete bridge girders designed in part to address unresolved questions raised by the previous investigation. This dealt with the characteristic brittle fatigue failure of prestressing steel strands demonstrated in Figures 8, 9 and 10. The new investigation was a collaborative effort between the states of Texas and Louisiana, with the tests of the full size 50' prestressed concrete girders taking place in the Ferguson Testing Laboratory at the University of Texas in Austin. The investigation served to increase the state of knowledge concerning fatigue strength and behavior of large bridge girders.

In another investigation the Bonnabel overpass, an existing bridge in Metairie, Louisiana, was investigated. It had been originally constructed using composite steel girders and later widened using composite prestressed concrete girders. Fully prestressed concrete girders undergo camber growth with time that lifts the cast-in-place, reinforced concrete roadway slab they support. Since steel girders do not experience camber growth and the roadway slab of the widened portion is cast integrally with the original cast-in-place, reinforced concrete roadway slab, the widened portion tends to lift the original roadway slab up and off of the adjacent steel girders supporting the original portion of the bridge.

Part of the investigation involved loading one of the Bonnabel overpass spans with a known permit overweight vehicle that would cause measurable deflections. Since the Bonnabel overpass was part of the urban interstate system, the highway could only be closed for testing between midnight and 3:00 am to permit loading and data collection. The project was a collaboration between Tulane's Civil Engineering and Mechanical Engineering Departments. The Mechanical Engineering Department's faculty involved were James C. O'Hara and P. Michael Lynch.

During this decade, research and testing of prestressed concrete piles spliced with ABB units were conducted under the sponsorship of a Scandinavian firm, the Abetong-Sabema A-Joint Corporation. Some of the tests were conducted in the fabrication facility of Gulf Coast Prestress Company in Pass Christian, Mississippi; and some of the tests were conducted in the Talbot Laboratory at the University of Illinois in Urbana, Illinois. The Illinois tests were conducted by William Gamble. The Tulane engineering student involved in the project was Edward Scheuermann, who was the recipient of the first

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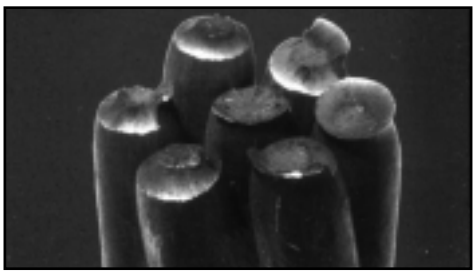

Figure 8. Characteristic ductile fracture of a 7-wire steel strand for prestressed concrete.

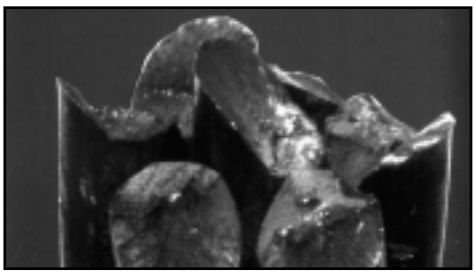

Figure 9. Characteristic brittle fracture of a 7-wire steel strand for prestressed concrete.

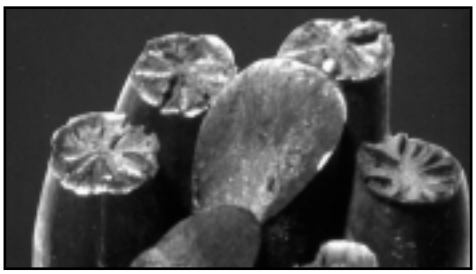

Figure 10. Characteristic combined brittle and ductile fracture of a 7-wire steel strand for prestressed concrete.

News from the Branches

ACADIANA

By Glenn McCall, PE, President

Branch members — I hope all of you have enjoyed the summer. Typically, the summer months provide a well earned break for the Branch Board after nine months of hard work in service to the Branch. This summer is no different. The Branch hosted the very successful 2002 Section Annual Spring Meeting and Conference in Lafayette. With substantial resources coming from the members of the Board in support of the Conference, they have stepped back to catch their breath, renew their energy and then begin preparing for the upcoming administrative year that begins in September.

Congratulations go out to our Branch member, **Patrick J. Landry,** who was nominated and elected during the Section's Annual Spring Meeting to serve on the Section Board of Directors as a Director-at-Large. Pat, a Past President of the Acadiana Branch, is employed by the Louisiana Department of Natural Resources, and has served as a Section committee chair. His addition to the Section Board will continue the tradition of successful support provided to the Section by our Branch leadership.

Many of the Programs that the Acadiana Branch initiated in the Fall have been successfully completed. Currently, one of these programs that has not been completed is the planned book donation to the Lafayette Parish public schools through the Parish School Board. The Acadiana Branch submitted copies of selected, age-appropriate books about civil engineering to the School Board a couple of months ago, and we anticipate receiving an approved list of books in the next couple of weeks. Upon receiving it, an appropriate number of books will be purchased by the Branch and donated to the schools during a regularly scheduled meeting of the School Board.

The Branch's book donation program is one that the Branch has a long range interest in continuing. As the resources become available, the book offer is planned to be made to the public schools throughout the 16 parish area of the Acadiana Branch. We are seeking contact members in each of the remaining parishes through which to coordinate the book donations with the respective parish school boards. If you are interested in serving the Branch and your community in this capacity, please contact a member of the Branch Board.

I know that there are many ongoing civil engineering application projects in our 16 parish Branch area that are near completion or that have been recently completed that have many interesting and often unique features or problems solved that are encountered during the design, construction and/or the startup phases. Similarly, there may be engineering studies of similar interest being pursued that are near or recently completed. I urge you to consider sharing your experience through such work with your fellow Section members.

Since none of the branches in the Section have a formal newsletter that offers the opportunity to present such articles, we share the Section journal in part for this purpose. James C. Porter, PE, the editor of *The Louisiana Civil Engineer,*

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SHREVEPORT

By Joe E. (Butch) Ford, PE, President

The newly installed officers of the Branch are involved with planning the Branch's activities for the 2002-03 administrative year. The first Branch membership meeting is scheduled for September 11, 2002. Keith Hightower, the Mayor of the City of Shreveport, is invited to be our guest speaker. We look forward to seeing you there.

The ceremony for the installation of the Branch's elected officers was performed by Mark W. Snow, PE, President of the Section, during a luncheon held at Olde Oaks Golf Course. The officers who were installed to serve during the 2002-03 administrative year are:

- Joe E. (Butch) Ford, Jr., PE, President
- C. Eric Hudson, PE, President-Elect
- Kurt M. Nixon, EI, Treasurer
- Lisa Nichols, Secretary
- Rasoul Nazermalek, PE, Past President

The Louisiana Tech University ASCE Student Chapter recently notified the Branch that its surveying team placed first in the Deep South Conference competition and participated in the National Student Conference hosted by the University of Wisconsin in June. The Branch Board acted to make a contribution to the Chapter to help offset the travel expenses for the team to participate in the national competition.

The Branch has been requested to sponsor the Catenary bridge for the GEE WHIZ outreach exhibit at the SciPort in Shreveport. The Branch will be soliciting potential cosponsors later this summer to help fund this project.

A principal discussion during the July meeting of the Board was ways to increase the membership of the Branch and to increase the participation of the current Branch members starting with greater attendance during scheduled Branch membership meetings. Branch members are being requested to contact fellow civil engineers they know who may not be members of the ASCE and encourage them to consider joining the Society. If they are ASCE members, invite them to join in participating in the next Branch function.

BATON ROUGE

By Roy A. Waggenspack, PE, President

The following Branch members comprise the official slate of nominees for the offices of the 2002-2003 Branch Board of Directors:

- David M. Burkholder, PE, President-Elect
- André M. Rodrigue, PE, Vice President
- Thomas T. Roberts, PE, Secretary-Treasurer
- Daniel C. Peters, PE, Director
- Greg P. Sepeda, PE, Director
- Jesse T. Thompson, EI, Associate Director

J. Keith Shackelford, PE, will succeed to the office of President. This slate was recommended by the Branch Nomination Committee and adopted by the Branch Board of Directors. Additional nominations will be entertained from the floor of the general membership meeting scheduled August 15th. The election of officers will immediately follow the close of nominations. Also during the August meeting, John J. Plaissance, II, PE, is scheduled to discuss the procedures used by the Louisiana Engineering Society to select Board members for the Louisiana Professional Engineering and Land Surveying Board.

Fred Raiford, Director of Public Works for the Parish of East Baton Rouge, spoke to an audience of more than 60 members and guests attending the June Branch general membership meeting. Raiford discussed current issues in the Parish Public Works Department, including those concerning active road projects and the engineering involved in upcoming sewer projects. At the invitation of the Branch, 15 past presidents of the Branch attended this membership meeting to be recognized by the Branch. Their services to the ASCE were acknowledged along with an expression of the appreciation of the Branch membership.

The Branch continues to plan and schedule continuing education opportunities for civil engineers at cost and that qualify for professional development units toward maintaining engineering licensure in Louisiana. There is an Advanced Wastewater Treatment Activated Sludge Process seminar scheduled September 12 and 13, 2002. It will be housed in the Holiday Inn Baton Rouge East. More complete details concerning this seminar and registration information are provided in this issue. As of June 8, there were already 27 registrants for this seminar.

NEW ORLEANS

By Reda M. Bakeer, PE, President

The 2002 Louisiana Civil Engineering Conference & Show sponsored by the Branch and the Louisiana Chapter of the American Concrete Institute is scheduled for September 12-13 at the Pontchartrain Center in Kenner. The Annual Meeting and Awards Banquet of the Section hosted by the Branch is scheduled for the evening of Friday, September 13, at the New Orleans Country Club in Metairie. For more information about these events or if you are interested in becoming a sponsor or an exhibitor, see elsewhere in this issue, or please contact the organizing committee chair Christopher G. Humphreys, PE, PSI, 724 Central Avenue, Jefferson, LA 70121; telephone: (504) 733-9411; facsimile: (504) 733-9415; e-mail: chumphreys@psiusa.com.

The structures committee organized a seminar titled *Structures Behavior in National Disasters* presented at the University of New Orleans. Its next event is a seminar titled *Galvanized Steel* and it is scheduled to be presented at UNO in July. For more information contact John A. Crutti, PE, J. Ray McDermott, Inc., 1010 Common Street, New Orleans, LA 70112; telephone: (504) 587-5073; facsimile: (504) 587-5099; e-mail: jacrutti@mcdermott.com.

Aurora N. Luscher, PE, Younger Member Chair, reports that on May 15th, the Branch Younger Members Group gathered at *Lager's* in Metairie for a social event. Younger members also congregated at *Cooter Brown's* in Uptown New Orleans on June 26th for food and festivities and on July 24 at the *Parkway Tavern* on Canal Boulevard in Lakeview.

As part of the ASCE 150th anniversary celebration, the New Orleans Branch is launching an advertisement campaign in the local newspapers. The campaign will highlight the work of civil engineers and their contribution to society. Local civil engineering firms and consultants are encouraged to contribute to this effort. For more information or to make a contribution to this campaign, contact Reda M. Bakeer, PE, Department of Civil and Environmental Engineering, Tulane University, New Orleans, LA 70118; telephone: (504) 865-5778; facsimile: (504) 862-8941; e-mail: bakeer@tulane.edu or Harry W. Stinchcomb, Jr., 6010 Coliseum Street, New Orleans, LA 70118; telephone: (504) 891-9346; e-mail: stnchcmb@bellsouth.net.

The Branch awards recognizing some of its outstanding members for the 2001-02 administrative year were presented during the June membership meeting and luncheon at *Cannon's Restaurant.* The recipients of the awards were:

- **Ryan Koenig,** Outstanding Young Civil Engineer
- **Nelson P. Conover,** PE, Outstanding Civil Engineer
- **Peter R. Cali,** PE, Outstanding Government Civil Engineer
- **Thomas L. Jackson,** PE, Lifetime Achievement Award
- **Deborah D. Keller,** PE, President's Medal

The geotechnical committee posthumously awarded to **Charles W. (Buzz) Hair, III,** PE, the 2001 Buzz Hair Medal. It was accepted by members of his family. The 2002 Buzz Hair Medal will be presented during the 2002 ASCE/ACI Louisiana Civil Engineering Conference & Show. In addition, ASCE Life Member certificates were presented to **Nelson P. Conover,** PE; **James B. Graham, Jr.,** PE; **E. M. Gray, Jr.,** PE; **George C. Kleinpeter, Jr.,** PE; and **Quy Nguyen.** The Branch awards committee, chaired by Angela DeSoto Duncan, PE, selected the winners and presented the awards during the luncheon meeting.

The slate of official nominees for the officers to serve on the Branch Board of Directors for the 2002-03 administrative year was approved by the Board, and published by mail and on the Branch website. The slate of official nominees was adopted and elected by the members present during the June Branch membership meeting and luncheon scheduled for that purpose. The newly elected Branch Board of Directors that will be installed during the Annual Meeting of the Section is as follows:

- Daniel L. Bolinger, PE, President
- Christopher G. Humphreys, PE, President Elect
- Deborah D. Keller, PE, Vice President
- William H. Sewell, Jr., PE, Treasurer
- Christopher L. Sanchez, EI, Secretary
- Gustave S. (Gus) Cantrell, PE, Director
- Peter R. Cali, PE, Director

Walter E. Blessey, PE, professor and former chair of civil engineering at Tulane University and past president of the ASCE, was accorded a rare honor on April 11 when one of the four original buildings on the Tulane campus was rededicated in his name. The 108-year-old Civil Engineering building was renovated through the generous contributions of a group of alumni and friends headed by **Robert E. Englekirk,** PE, a 1959 Tulane graduate. The dedication ceremony took place on the Tulane campus and was attended by the Tulane University President, Scott Cowen; Dean of Engineering, Nick Altiero, and a large number of professor Blessey's family, students and colleagues.

The New Orleans Branch mailing address is
ASCENO
Post Office Box 6403
Metairie, LA 70009-6403.

Correspondence to the Branch should be sent to this address directed to the attention to the officer or committee chair it concerns. Similarly, correspondence may be directed to the Branch by email to ceisubscribe@asceno.org or the Branch website www.asceno.org.

Walter E. Blessey, PE (2002)

Blessey (Circa 1945)

(Continued from Page 8)

solicits and is always interested in articles about civil engineering projects, preferably in and about Louisiana authored by civil engineers resident in Louisiana and preferably — but not necessarily — Branch members. If you or anyone in your organization is working on a project that you would be willing to share with Section members as a feature article or even as a short article in the Section journal, please contact him or any member of the Branch Board. Jim is willing to work as closely as it is desired and necessary with authors during the editing phase, supporting organization and development leading to a finished article. This means that lack of time for — or comfort with — writing should be less of a factor in your decision. Remember that authors of formal articles such as the feature articles that appear in *The Louisiana Civil Engineer* are rewarded with 5 professional development units toward maintaining engineering licensure in Louisiana.

Finally, I hope all of you have a safe and enjoyable summer and we will see you in the Fall.

2002 Louisiana Civil Engineering Conference and Show

By Daniel L. Bolinger, PE

Please make room in your schedule to include this year's 12th Annual Louisiana Civil Engineering Conference & Show scheduled for September 12-13, 2002. The New Orleans Branch and the Louisiana Chapter of the American Concrete Institute jointly celebrate sponsoring and presenting this year's conference. The Conference was created for — and it is open to — all practicing engineers, contractors and technical material suppliers who can be proud to attend and participate in this event. It offers a forum for the participants to come together and share their technical knowledge, information, experiences and to network with each other in an intensive two-day conference of scheduled technical sessions. In addition the conference provides, at a very affordable cost, access to approved professional development hours required to maintain engineering licensure in Louisiana. Visit the Branch websites at asceno.org or cpdseminars.com to keep abreast of the technical sessions being scheduled, and to register and pay on-line.

The Conference has grown in size and scope. The most recent 2001 Conference had 472 registrants, and featured 35 technical sessions, 50 exhibitors and a workshop. As a result, the Conference steering committee traditionally chaired by the President-Elect of the Branch beginning with the 2001 Conference was co-chaired by the President-Elect and Vice President of the Branch with plans that the 2002 Conference steering committee would be co-chaired by the Vice President of the Branch and a member of the Louisiana Chapter of the ACI thereby sharing the management responsibilities between the sponsors. The co-chairs of the 2002 Conference steering committee are **Christopher G. Humphreys,** PE, Vice President of the Branch, and **Mark A. Cheek,** PE, an ACI Louisiana Chapter member.

The Conference steering committee is staffed with *volunteers* who give a tremendous amount of their personal time, energy and resources to help plan and execute the Conference. Their names and a means to contact them are included in the following table. The growth and success of this conference has come in part from the efforts of the members of the steering committee and their many predecessors. For this reason, I encourage those who attend the Conference to personally thank the conference committee members for their time and energy in planning and executing the Conference.

On behalf of the Branch, I would like to express a special thanks to all the companies that make the extra effort to participate in — and donate to — the Conference in the form of company gold, silver and bronze sponsorships. With continued input from company sponsors, volunteers, technical presenters and exhibitors we expect a conference that is equally successful or better than the 2002 Conference — providing all of those in attendance an outstanding and enjoyable professional development opportunity.

Steering Committee for the Louisiana Civil Engineering Conference and Show

Member/Responsibility	e-Mail Address	Telephone	Facsimile
Christopher G. Humphreys, PE, ASCE Co-chair	chris.humphreys@psiusa.com	504-733-9411	504-733-9415
Mark A. Cheek, PE, ACI Co-chair	mcheek@betatestingonline.com	504-227-2273	504-227-2274
Ryan Koenig, Technical Program and Speakers	rkoenig@bkiusa.com	504-486-5901	504-483-6221
Gustave S. Cantrel, PE, Exhibitors	gcantrel@uno.edu	504-280-5553	504-280-5555
Norma Jean Mattei, PE, Exhibitors	nmattei@uno.edu	504-280-5414	504-280-5586
William W. Gwyn, PE, Sponsors	gwyn@eustiseng.com	504-834-0157	504-834-0354
Thomas M. Smith, PE, Sponsors	deiengr@dei-engr.com	504-836-2155	504-836-2159
Frank C. McCaskell, PE, Website and Publicity	frankmcc@members.asce.org	504-835-2577	504-837-5924
Stephen C. Bourg, PE, Registration	stephen_bourg@urscorp.com	504-837-6326	504-831-8860
Harry W. Stinchcomb, Jr., Catering and Banquet	stnchcmb@bellsouth.net	504-891-9346	—
Deborah D. Keller, PE, Treasurer	kellerd@portno.com	504-528-3297	504-528-3475

-Observations-

Design:

Traditional factors of safety applied to engineered facilities are developed through probability theory and/or empiricism to account for the predictable effects of the natural geophysical environment and the human use anticipated considering their stochastic nature. The factors provide a defined, acceptable level of reliability for the effective service and survival of the facilities so designed. Design for terrorist attack would appear to be an entirely different matter.

Like much of military history — ineffectively preparing to fight the next war based on the experience of previous wars — engineers may be faced with the same problem in a design process intended to address security issues for facilities. Unfortunately, design features that may effectively promote passive and/or support active security measures to protect a facility from terrorist attack based on previous experience are only as good as the last creative method of terrorist attack.

Using creative thinking and considering changing conditions, engineers may define new opportunities for terrorist attacks heretofore not experienced and then design the security measures against them. This would appear to serve terrorists' purposes as well by defining new opportunities for terrorist attacks by possibly making more vulnerable to attack many of the facilities designed prior to the new scenarios defined.

It may be a much more economically feasible and a moral choice to incapacitate or exterminate the terrorists, their organizations and those who support them to reduce the probability of attack — an intentional human use though considered perverse and evil — rather than attempt to reduce the probability of a successful attack in a rising tide of the probability of terrorism unabated and bent on randomly destroying the infrastructure and/or the lives of the people it serves. - Editor

Education:

There is a shift in emphasis in the ABET Engineering Criteria 2000 for civil engineering education. It is a new focus in the curriculum content directed toward education for typical career roles in civil engineering such as the essential skills and strategies in management, planning, regulation, advocacy, critical thinking, finance, economics, law, social consciousness, etc. The shift in focus would appear to be competing for the inadequate hours currently available in the civil engineering baccalaureate curriculum. It is questionable that the time-constrained current curriculum effectively covers learning and applying basic civil engineering technologies sufficiently enough to enter and support a practice. What will the graduate civil engineer face in the future job market being even less competent and possibly incompetent in the application of entry level, basic technology and more knowledgeable yet inexperienced in executive level skills and issues? Maybe there will be entry level CEO positions available by the time they enter the job market.

- Announcement -
Advanced Wastewater Treatment Activated Sludge Process Seminar
September 12-13, 2002 • Holiday Inn-Baton Rouge-East • I-10 @ Siegen Lane

Earn 16 PDHs attending this two-day continuing professional development seminar for an economical fee of $150. This seminar is sponsored by the ASCE Baton Rouge Branch and will cover following topics:

- Microbiological and Biochemical fundamentals of biological treatment
- Activated sludge process parameters
- Description of biological process for nitrification and nitrogen removal
- Biological nitrification and denitrification
- Activated sludge design for nitrogen removal
- Class example problems
- Description of biological phosphorus removal processes
- Process design for biological phosphorus removal
- Wastewater characterization for BNR processes
- Process operating parameters for BNR processes
- Clarifier design loading principles
- Membrane separation technology

Speakers:

H. David Stensel is a professor of civil and environmental engineering at the University of Washington, Seattle, WA. He has 10 years in practice outside of academia developing and applying industrial and municipal wastewater treatment processes. Stensel received his BS in civil engineering from Union College, Schenectady, NY, and MB and PhD in environmental engineering from Cornell University. His research interests are wastewater treatment, biological nutrient removal, sludge processing methods, biodegradation of hazardous substances, and stormwater treatment. He authored or coauthored over 100 technical publications and a textbook on biological nutrient removal.

Glen T. Daigger is a Senior Vice President with CH2M Hill and serves as Chief Wastewater Process Engineer responsible for wastewater process engineering for both municipal and industrial wastewater treatment projects on a firm-wide basis. One of Daigger's major responsibilities within CH2M Hill was the development of wastewater treatment technology. He has organized a series of internal symposia that deal with wastewater treatment technology. Daigger led a technical initiative in the areas of coupled trickling filter/activated sludge process technology, nutrient control, filamentous bulking control, advanced techniques for wastewater treatment plant analysis and optimization, integrated approaches to water pollution control, and toxics control in wastewater treatment plants (both aquatic and air emissions).

Coupled trickling filter/activated sludge processes represent a diverse range of technologies which use a trickling filter in combination with a suspended growth biological population. They offer advantages in terms of improved process stability, ease of operation, improved effluent quality, and reduced power costs relative to other, competitive biological treatment processes. Daigger's leadership in this area includes detailed analysis of existing coupled process facilities, service as principal investigator on reset projects comparing six different types of trickling filter media and on an evaluation of the trade-offs between trickling filter and suspended growth reactor sizing to achieve various effluent quality objectives. Numerous technical publications and presentations have resulted. Daigger has served as senior process consultant on more than 20 coupled process projects.

Reservations and Registration Instructions:

The seminar will be held in Holiday Inn-Baton Rouge-East (I-10 @ Siegen Lane) Thursday and Friday, September 12-13, 2002 from 8:00 am to 5:00 pm each day — lunch on your own. For room reservations contact the Holiday Inn-Baton Rouge-East at 225-293-6880. Use the code "ASC" or give the title of the seminar in making your room reservations. Reservations are required and will be accepted in the order received since seating may be limited. To make reservations complete the registration form and send it by facsimile to (225)952-7665. To register send the completed registration form with your registration fee of $150.00 by check payable to ASCE Baton Rouge Branch to

Owen and White, Inc.
Post Office Box 66396
Baton Rouge, LA 70896
Attention: Roy A. Waggenspack, PE

For additional information, contact Roy A. Waggenspack, PE, at (225)926-5125.

Seminar Pricing Policy:

The Board of Directors of the Baton Rouge Branch establish the policy that the continuing professional development activities sponsored by the Branch be essentially self-supporting and do not generate revenue for the branch. The fee for each CPD program is set to cover the costs of the event only based on anticipated attendance.

- Registration Form -
Advanced Wastewater Treatment Activated Sludge Process Seminar
September 12-13, 2002 • Holiday Inn-Baton Rouge-East • I-10 @ Siegen Lane

Name: _____ Title: _____

Firm: _____

Address: _____

Telephone: _____ Facsimile: _____

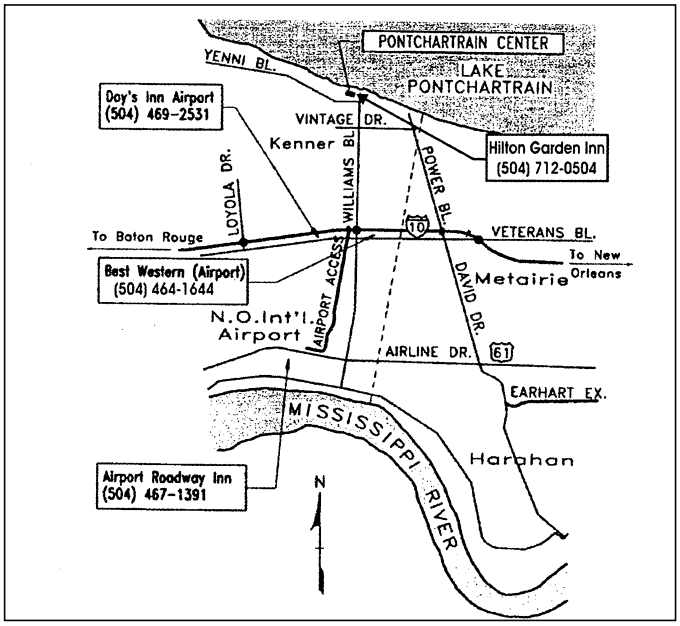
2002 Louisiana Civil Engineering Conference and Show Announcement

The Pontchartrain Center • September 12 - 13, 2002 • Kenner, Louisiana

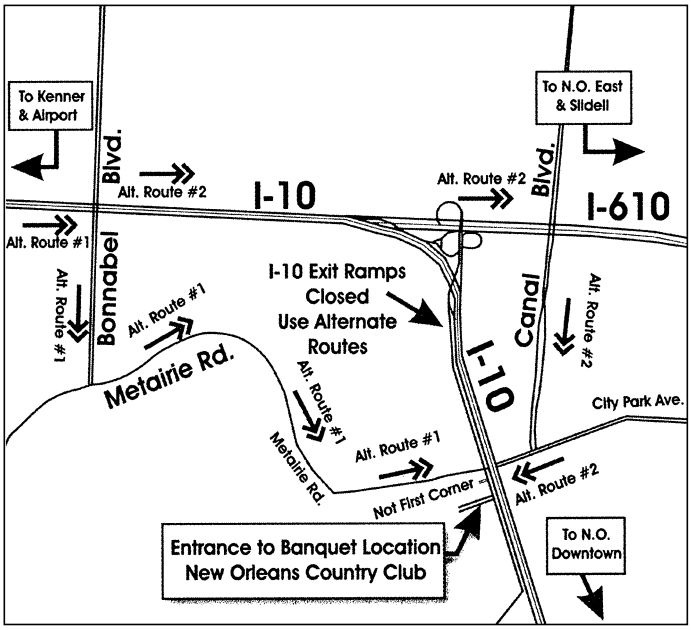
The Louisiana Civil Engineering Conference and Show sponsored by the New Orleans Branch and the Louisiana Chapter of the American Concrete Institute continues to be the premier annual event for civil engineers in Louisiana. The Conference provides two days of concentrated and substantial professional development opportunities for civil engineers. They include:

- a large trade show exhibition with vendor sales and technical representatives present with information and displays for a broad variety of products and services used by civil engineers
- a 2-day schedule of technical sessions providing a broad variety of topics on 3 concurrent tracks offering up to 11 authorized professional development units toward maintaining engineering licensure in Louisiana and including ethics and fire code sessions; and
- social opportunities for networking with peers during the generous break periods, luncheons, breakfasts and icebreaker.

The evening following the Conference, the New Orleans Branch will host the Annual Meeting of the Louisiana Section at the New Orleans Country Club. An opportunity to enjoy the Club's excellent food and the entertainment provided by Joe Simon's Jazz Combo, it is an important evening for the Section. Its officers will be installed for the 2002-03 administrative year that begins at the conclusion of the Annual Meeting. Also, some of its outstanding members will be recognized during an awards ceremony that is part of the event.



Location map for the Pontchartrain Center, site of the Louisiana Civil Engineering Conference and Show.



Location map for the New Orleans Country Club, site of the Section Annual Meeting and Awards Banquet.

Enjoy the luncheons and their technical presentations along with the opportunity that they provide for networking.

Break time in the exhibit area gives more opportunity to network with fellow professionals and the vendors providing services and supplies used by civil engineers.

2002 Louisiana Civil Engineering Conference and Show
Registration Form

Registration Information							
First Name:		M.I.:	Last Name:				
❑ P.E.	❑ E.I.	❑ L.S.	❑ L.S.I.	❑ Ph.D.	❑ A.I.A.	❑ Other _____ (Specify)	
Badge Name:		Company Name:					
Street:		City:		State:	Zip:		
Telephone:	Facsimile:	E-mail:					
Membership:	❑ ASCE	❑ ACI	❑ Other _____ (Specify)				

Individual Registration	Subtotal
Full Registration: ❑ Professional - $170 ❑ Student / Retired - $95 *Includes all seminars, exhibits and luncheons for one attendee for two days.*	$
Thursday Only: ❑ Professional - $120 ❑ Student / Retired - $75 *Includes seminars, exhibits and luncheon for one attendee on Thursday.*	$
Friday Only: ❑ Professional - $120 ❑ Student / Retired - $75 *Includes seminars, exhibits and Keynote Luncheon for one attendee on Friday.*	$
Friday Keynote Luncheon Only: Quantity: _____ x $25 each = *Use only to purchase Keynote Luncheon tickets for non-registrants.*	$
Friday Entree Choice: ❑ Filet Mignon ❑ Fish Almondine ❑ Vegetarian	

Early Registration Discount	Subtotal
Register prior to August 23, 2002 and receive a $45 discount on individual registration.	**- $45.00**

Louisiana Section Annual Meeting and Banquet	Subtotal
New Orleans Country Club • Friday, September 13, 2002 • 6:00 pm to 10:00 pm	
Quantity: _____ x $40 each = Spouse / Guest Names: _____ *Must be paid prior to banquet no later than registration during the Conference.*	$
Entree Choice: ❑ Chateaubriand ❑ Trout Meuniere ❑ Vegetarian	
Total Fee Remitted:	$

Make checks payable to: **ASCE New Orleans Branch**

Mail completed registration form with payment in full to:

Stephen Bourg, PE
c/o URS Corporation
3500 N. Causeway Blvd., Suite 900
Metairie, Louisiana 70002

Alternative:
Visit our website to register on line with your credit card and/or find updated information about the Conference and its technical sessions — www.cpdseminars.com

To register groups of 10 or more, call Stephen Bourg at (504) 837-6326 for group discounts.
For sponsorship, call Bill Gwyn or Lorraine Nicholls at (504) 834-0157 or visit our website.

2002 Louisiana Civil Engineering Conference and Show
Technical Sessions Program

	Thursday, September 12, 2002 - Morning Session		
	Mary Minor Room	Oakland Plantation Room	Esplanade Room
	General Civil	**Structural**	**Environmental / Water Resources**
Moderator	TBA	**James R. Danner, Jr., PE** Denson Engineers, Inc	TBA
8:30 - 9:55 9:00 - 9:25	***Dynamic Driveway Details for Designers and Developers*** Steven C. Strength, PE, District Traffic Operations Engineer and Lam Nguyen, PE, Traffic Design Engineer DOTD, Bridge City, Louisiana	***Post Tensioned Bars and Strand Update*** Kris Kriofske, PE Dwyidag Systems International Arlington, Texas	***River Management Initiatives on the Rhine River System*** Edmond J. Russo, Jr., PE Operations Manager US Army Corps of Engineers, NO Branch New Orleans, Louisiana
9:30 - 9:55 10:00 - 10:25	***Paving Today's Roads for Tomorrow's Travel Utilizing Pavement Management Applications*** Mike Evans, Director, Ashvini Y. Pandit, PE, Asst. Director, Jefferson Parish Department of Streets Jim Hallman, PE, Manager Stantec, Jefferson, Louisiana	***Effect of Longitudinal Reinforced Ties on Shear Performance of Concrete Beams*** Steve Cai, PE, Asst. Professor, Department of Civil and Environmental Engineering, LSU Baton Rouge, Louisiana	***Toxic Molds: What Every Civil Engineer and Contractor Should Know*** Tracy Dodd, Regional Manager C-K Associates, Inc. New Orleans, Louisiana
10:30 - 10:55	**Morning Break**		
11:00 - 11:25	***Future of Airports*** William A. Fife, PE Director of Aviation DMJM+HARRIS, Inc. New York City, New York	***Continuity Diaphragm for Skewed Concrete Girder Bridges in Louisiana*** Aziz Saber, PE, Assistant Professor, Department of Civil Engineering Louisiana Tech University Ruston, Louisiana	***Advanced Hydrologic Prediction Services of the National Weather Service*** Dave Reed, Hydrologist in Charge National Weather Service New Orleans, Louisiana
11:30 - 11:55			***Tools for Predicting DNAPL Removal from Groundwater Using Neutrally Buoyant Cosolvent Flooding*** Johana Husserl, Ana Marie Ocampo and Glenn Boyd, Professor, Tulane University New Orleans, Louisiana
12:00 - 1:25	**Luncheon**		
	Thursday, September 12, 2002 - Afternoon Session		
	Mary Minor Room	Oakland Plantation Room	Esplanade Room
	General	**ACI**	**Geotechnical**
Moderator	TBA	TBA	**Mohammad Tavassoli, PE** PSI, Inc.
1:30 - 1:55 2:00 - 2:25	***State Initiatives in CWPPRA and Coast 2050*** Randy Hanchey, Assistant Secretary for Coastal Restoration and Management Department of Natural Resources Baton Rouge, Louisiana	***Structural Strengthening Using Carbon Fiber Technologies*** Dave White, PE Director of Marketing Sika Corporation Lyndhurst, New Jersey	***Slurry Wall Design and Construction*** Stephen McCann GeoCon Pittsburg, Pennsylvania
2:30 - 2:55 3:00 - 3:25	***Lesson Learned - Project Management*** Om P. Dixit, PE Vice President DMJM+HARRIS, Inc. New Orleans, Louisiana	***Controling Shrinkage Cracking in Concrete*** Burleigh Withers, III Engineering Services Group Master Builders Jupiter, Florida	***Top Down Construction*** Gerry McShane Corus Steel
3:30 - 3:55	**Afternoon Break**		
4:00 - 4:25 4:30 - 4:55	***Ethics*** Norma Jean Mattei, PE, Professor, Dept. Civil and Environmental Engineering University of New Orleans New Orleans, Louisiana	***ABCs of Fiber Reinforced Concrete*** R.C. (Bob) Zellars, PE, Vice President Nycon, Inc. Mercer, Pennsylvania	***Geotechnical Applications for Centrifuge Modeling*** Wipawi Vanadit-Ellis U.S. Army Corps of Engineers
5:00 - 7:00	**Icebreaker** Snacks and drinks are served in the exhibit hall, Room MR - 2 and 3.		

2002 Louisiana Civil Engineering Conference and Show
Technical Sessions Program

	Friday, September 13, 2002 - Morning Session		
	Mary Minor Room	Oakland Plantation Room	Esplanade Room
	General / Construction / Management	**Codes**	**Geotechnical**
Moderator	**Om P. Dixit, PE** DMJM+HARRIS, Inc.	TBA	TBA
8:30 - 8:55	***Port Security and Vulnerability Issues*** Edward Schmeltz, PE, Director Ports and Harbors, DMJM+HARRIS, Inc. New York City, New York	***TBA***	**Charles W. "Buzz" Hair, III** **- Memorial Presentation -** ***Dewatering for SELA Pump Station No. 1*** Richard Bird, URS Corporation St. Louis, Missouri
9:00 - 9:25	***Computer Simulation Analysis of Traffic Movement on Rdwy. Network at Port of New Orleans Terminal*** Cade M. Braud, PE, Senior Transportation Engineer, Urban Systems and Associates New Orleans		
9:30 - 9:55	***Port of New Orleans Expansion Project*** Kyle Jones Port of New Orleans New Orleans, Louisiana	***Means of Egress Chapter 7 - Fire Safety Code*** James R. Danner, Jr., PE, and Allison J. Launey, PE, Denson Engineers, Inc. New Orleans, Louisiana	***Ground Movement Due to Excavation*** Madonna Montz US Army Corps of Engineers New Orleans, Louisiana
10:00 - 10:25			
10:30 - 10:55	**Morning Break**		
11:00 - 11:25	***Port of New Orleans Expansion Project*** William E. Rushing, Jr., PE	***Features of Fire Protection Chapter 8 - Fire Safety Code*** James R. Danner, Jr., PE	***Analysis of Pile Capacity Design Using Cone Penetrometer Data Through Case Studies*** Chad L.Held, EI
11:30 - 11:55	Waldemar S. Nelson and Company, Inc. and Tom Knight, URS Corporation New Orleans, Louisiana	Allison J. Launey, PE Denson Engineers, Inc. New Orleans, Louisiana	Eustis Engineering, Co. Metarie, Louisiana
12:00 - 1:55	**- ACI Keynote Luncheon -** Keynote Speaker: Terrence C. Holland, ACI National President ***Sustainability in the Concrete Industry***		
	Friday, September 13, 2002 - Afternoon Session		
	Mary Minor Room	Oakland Plantation Room	Esplanade Room
	General Civil	**ACI / Design**	**Environmental / Water Resources**
Moderator	**Miles B. Bingham, PE** URS Corporation	TBA	TBA
2:00 - 2:25	***Bridge Approach Embankment Construction Over Soft Ground*** William (Bubba) Knight, PE Chief Engineer, Transportation Services PSI, New Orleans, Louisiana	***FHWA's New Computer Programs for Concrete Pipe and Box Designs (PIPECAR and BOXCAR)*** Oliver S. Delery, Jr., PE Vice President Choctaw, Inc., New Orleans, Louisiana	***Maurepas Freshwater Diversion Project*** Chris Williams Department of Natural Resources Baton Rouge, Louisiana
2:30 - 2:55	***NAVD 88 Datum Plane and CORS*** Mark Huber US Army Corps of Engineers New Orleans, Louisiana		***Potential of Advanced Oxidation Process for Simultaneous Disinfection and Polishing of Drinking Water*** Jennifer Holland, Tulane University New Orleans, Louisiana
3:00 - 3:25	***Ethics*** Norma Jean Mattei, PE, Professor, Dept. Civil and Environmental Engineering University of New Orleans New Orleans, Louisiana	***TBA*** Kevin Bohannon Chemrex Baton Rouge, Louisiana	***Providing Safe Drinking Water in the Future: Approaches and Perspectives*** Phil O. Nelson, III, PE Principal Engineer Montgomery Watson Harza Metairie, Louisiana
3:30 - 3:55			
6:00 - 10:00	**Louisiana Section Annual Meeting and Banquet** New Orleans Country Club		

Quote...

Design: I have never seen a bridge built from its design calculations. Contractors build bridges from the drawings and the special provisions. No matter how good the design is, it will never be better than the drawings and the special provisions that communicate it... Simply put, good bridge designers know and use good details... Bridge design is an art based on the application of science.

- Unknown

Student Chapter News

University of Louisiana at Lafayette

The Chapter's steel bridge team worked very diligently this summer with its main focus on competing in the national steel bridge competition that was held in Madison, Wisconsin late in June. The competition is a scaled simulation of a representative bridge engineering project. The competition bridges were judged for their excellence in design and construction based on their measured stiffness, lightness, speed of construction, aesthetics, efficiency, and economy. The competition bridges are also required to minimally conform to the competition rules and guidelines, which are developed and maintained by the sponsoring American Institute of Steel Construction, Inc.

The students labored with equal diligence to qualify for the national competition by preparing well and successfully competing in a Deep South Conference of student chapters regional competition in April that was hosted by the Southern University Student Chapter in Baton Rouge. The bridge that was used for the regional competition was a girder design that weighed 290 pounds and deflected approximately 1.4" under the competition load. The team received the regional award for having the fastest construction time with an assembly time of 2.4 minutes. Overall, the team placed second in the regional competition to qualify to compete in the national competition.

To prepare for national competition, the team decided to design and fabricate a new competition bridge. It was a truss design that was considerably lighter than the girder design and it was believed it would allow them to be significantly more competitive in the national competition. The students on the team worked continuously up until the time of competition to perfect the design, fabrication and construction requirements for the competition bridge. The overall placement of the bridge in the national competition was 35th out of the 44 entries that competed. Even though this placement is not very impressive, it is only one measure of success. By preparing for — and competing in — the regional and national events, the students gained much valuable experience that will serve them well in their future careers and the Chapter in its future steel bridge competitions.

The election of Chapter officers for the upcoming year was held in late spring. The new officers have already begun making plans for what is hoped will be a very smooth and productive year for the Chapter.

University of Louisiana at Lafayette steel bridge competition team displays their certificates commemorating their awards following the Deep South Conference regional competition. They are from the left Whit Rankin, Nick Hernandez, Kelly Cook, Hector Membreno, Caroline Blair, and Kerry Simon.

University of Louisiana at Lafayette steel bridge team; Nick Hernandez, Kerry Simon, David Branch, and Whit Rankin; are assembling their steel bridge during the timed construction event during the national competition in Madison, Wisconsin.

-Observation-

Design:

Many bridges in Louisiana are standard designs or make extensive use of standard components and details because of the simple economics realized by the fact that these standards are feasible for — and applied to — a large portion of the bridge sites in the state. Sometimes the experience of using standards can lead to a proverbial problem: If the only tool you have (or consider using) is a hammer, all problems begin to look like nails.

Immediate application of a standard design solution to a site followed by questions about its feasibility afterwards is not responsible engineering. Considering the variation in the geophysical environment from one site to another and not just the investment in material and the details of construction but the often significant economics of public use and dependence on such facilities, great care should be given to engineering every site. This is to reasonably assure an economical application of a serviceable, reliable and durable design solution that many times will be the appropriate application of the standard design.

Engineering, particularly for rehabilitation of existing bridges, should not depend on a standard mentality in engineering. This is a mentality that should be avoided even when applying feasible standards, though the chances of getting by with it are much better with a reconstruction project given the experience gained from the service of the structure being replaced.

One of the most neglected aspects of preparing a contract for a rehabilitation project, and particularly a major damage repair contract, is the failure to perform a comprehensive cost estimate based on estimated labor, equipment and material. Normally this is avoided when using design standards by appropriately applying unit costs that are reasonably well known from previous use.

All bets are off when a nonstandard design solution is applied. The cost estimate requires the engineer, as a first step, to visualize a feasible method of — and estimate the time for — construction from beginning to end. This is followed by a complete cost takeoff of the material, and equipment and labor (rates and time) required to complete the project. The depth of knowledge that can be gained at this stage can sometimes confirm assumptions about feasibility or provide an opportunity to avoid moving forward with a conceptually inferior solution discovered.

Rather than depending on vague cost estimates based on a best guess from limited, previous experience that can be flawed considering the uniqueness of the design solution, one would do well to depend on the method a contractor uses to prepare a responsible bid. The education and understanding gained concerning such things as constructibility are substantial byproducts of a responsible estimate of the cost and time.

- Editor

Section News and Information

Highlights of the June Board of Directors meeting

The current and future content of the Section website was discussed in some depth. There was general satisfaction expressed with the format and contents of the website and interest in its future development.

The updating of the Section Handbook that has been passed through three people in attempts to update it is far from being completed in every detail and in its present form it was not considered useful or appropriate to be published on the website. A goal was set to have it updated and ready to be published on the Section website by the Annual Meeting of the Section in September. In the interim, the appendix of the Section Handbook that provides the constitution and bylaws of the Section and its organizational components will be published on the website.

A proposal to publish the names and contact information of the entire Section membership on the website was discussed in detail. It was decided by the Board that, consistent with its past policy, it is not appropriate to make the names and addresses of the Section's members generally available in such an uncontrolled context.

The next thrust for development of the Section website will be to develop a job availability page where the engineering firms with listings in the Section journal will be able to advertise their active position openings. There was some discussion about the details of how to implement this concerning the format and how the information would be solicited.

With the implementation of the website, the Board acted to discontinue the Section's toll free telephone number to the offices in the Louisiana Engineering Center that has been in service for several years. A review of its cost — approximately $50 a month — and usage suggests that it provides no effective service to the membership or the business activities of the Section and that usage consists almost entirely of wrong numbers and solicitation calls. The local telephone service for the Section to the offices in the Louisiana Engineering Center will be retained.

The Section was approached to donate $15,000 to sponsor a presidential reception during a national celebration of the 150th Anniversary of the ASCE. The reception is for Thomas L. Jackson, PE, the current President-Elect of the national ASCE and a member of the Louisiana Section. After some deliberation by the executive committee, it was determined that the amount of the donation requested was outside of the financial limits of the Section's budget and its reserves. A lesser but substantial donation relative to the Section's financial means of $5,000 was offered and accepted.

The Board was advised that with Section member, Tom Jackson, elected as President-Elect and soon to succeed to the Presidency of the national ASCE there should be significant interest among Board members in providing Tom with needs, issues and their positions on existing issues that are or should be of concern to the ASCE.

The Louisiana Tech student chapter solicited funds from the Section to supplement those necessary to attend a one-time national land surveying competition sponsored by the ASCE. The Chapter's surveying team won the surveying competition held during the most recent Deep South Conference of student chapters hosted by the Southern University chapter in Baton Rouge. In winning the competition, the Chapter's surveying team earned the right to participate in the national competition. Consistent with the funds budgeted annually to supplement the expenses for the winning teams of the concrete canoe and the steel bridge competition to attend their respective national competitions, the Board acted to provide $500 to help cover their expenses.

The Board recognized a significant other to the Louisiana Section, **Jaqueline Russo Dubroc,** who deceased June 1, 2002. A donation on behalf of the Louisiana Section was made to a memorial fund established by her family in her memory. She was the wife of Section member and Past President, Mark B. Dubroc, PE. She was fondly remembered and appreciated for her understanding, spirited and loving support of her husband's professional commitments to the Section during his tenure on its Board of Directors and particularly during his term as Section President (1996-1997). Mark's year as President was remembered as unusually full with pressing issues and controversy that kept him heavily involved in the Section's business throughout his Presidency and his term as Past President. Jaqueline's special support no doubt contributed significantly to the level of participation and effectiveness Mark was able to offer.

Other matters discussed and/or acted on by the Board follow:

- The solicitation of contributions to cover the $10,000 fee for the Section's participation in the Building Together program has fallen short and volunteers will be sought to help solicit donations to cover the fee as originally envisioned.
- The University of New Orleans student chapter requested and the Board acted to provide the $500 budgeted to help cover the expenses of its concrete canoe team to compete in the national competition. It is the winner of the 2002 Deep South Conference competition.
- The Section will have one or more representatives attending the organizing meeting to form a proposed Louisiana Structural Engineering Association to be held in Baton Rouge June 25, 2002.
- The Baton Rouge Branch will host the Section's Annual Spring Meeting and Conference in Baton Rouge and a date for this event will be set in the near future.

- Career Benchmarks -

The New Orleans newspaper, *The Times-Picayune,* awarded its 2001 Loving Cup to Section Member, **Waldemar S. Nelson,** PE. "The cup, awarded annually since 1901, recognizes citizens who have worked unselfishly for the community without expectation of public acclaim or material reward." The paper cited:

"For the past half century, Nelson, 85, has designed and built everything from roads and bridges to airports and oil rigs. But he also has quietly helped build a better New Orleans..."

The Loving Cup is the latest of dozens of awards bestowed on Nelson since 1962.

Nelson is a native of New Orleans, a 1936 graduate of Tulane University, and a licensed civil, mechanical and electrical engineer in 44 states. Shortly after World War II, he opened his engineering firm, Waldemar S. Nelson and Company, Inc. that today is an international enterprise employing over 300 people.

Section members **Russell L. Dupuy,** PE, **Christopher J. Ewing,** PE, **Mark A. Gayheart,** PE, **Lawrence L. Lambert, II,** PE, **Toby D. Picard,** PE, **Robert G. Routon,** PE, **Katherine C. Stachowiak,** PE, **William H. Wall,** PE, **Frederick S. Young,** PE, recently earned their civil engineering license in Louisiana. If you are in contact with any of these engineers, please offer them your congratulations on their accomplishment.

Louisiana residents **Elif O. Acar,** PE, **Frank W. Andrade,** PE, **Darryl C. Bonura,** PE, **Cade M. Braud,** PE, **Bobby J. Briggs,** PE, **Wayne Creel,** PE, **Alexander Dmytraczenko, Jr.,** PE, **Michael J. Duplantis,** PE, **Dale G. Frederick,** PE, **Leon G. Guidry,** PE, **Joseph M. Gustafson,** PE, **Thomas M. Hall,** PE, **Carl T. Hoffecker, Jr.,** PE, **James P. Hollier, Jr.,** PE,

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Waldemar S. Nelson

Box City

By Norma Jena Mattei, PE

For the second year, the Outreach and Student Activities Committee of the New Orleans Branch coordinated and operated a children's activity in the Kids' Cultural Village of *Jazzfest. Jazzfest* is the New Orleans Jazz and Heritage Festival that was held at the Fairgrounds April 26-28 and May 2-5, 2002. During the 2001 *Jazzfest*, the Branch sponsored activity was a Lego table where children could construct any structure that their imagination could conjure using Legos as the building blocks. This year's children's activity was much more ambitious.

The Branch sponsored and manned the activity, *Box City.* The idea proposed by Karen Konnerth, *Jazzfest* children's activity coordinator, was based loosely on a curriculum developed by the Center for Understanding the Built Environment. *Jazzfest* donated the supplies needed to build the large platform that became *Box City,* the various-sized boxes that would become its buildings, and art supplies for their design and decoration.

The *Jazzfest* carpenters built the platform — an 8'×16' table — placed in the kid's activity area. It was painted with a simplified layout of the city streets, boulevards, and city blocks of the City of New Orleans. Lake Pontchartrain was painted on the north side of the table and the Mississippi River on the south side.

The activity had three stages. The first stage was *permitting.* Each child was given a list of buildings that are necessary for a city environment such as homes, apartments, libraries, churches, schools, restaurants, factories, fire stations, etc. Before choosing a building to design, he or she toured the city, to see what existing buildings were already in place. After selecting a building type to design, each child was issued a white box (a blank building), a building permit, and a souvenir child-size soft plastic replica of a hard hat with the ASCE 150th anniversary logo on the front.

The second stage was *design.* Using markers, crayons, glue, and construction paper, the child decorated the box to resemble the building selected and for which he or she had been issued a building permit. Here the child's imagination was allowed run wild free of the burdens of any life safety code or sense of proportion. This allowed for very large buildings designed with few windows and doors, and small buildings designed with a seeming overabundance of them. Several pint-sized designers thoughtfully plastered the appropriate advertising on the sides of their buildings. A pet shop had a list of the pets for sale in the front window. The list posted the price for a hamster originally as $1 - scratched out and reduced to 50¢. What wonderful detail!

The third stage was *construction.* Once the child finished designing and decorating his or her building, it had to be placed in the city according to the rules written on the building permit they were issued. There were four different kinds of building permits issued. They were

- a place to live — single family residence, condo, retirement home, etc.
- a place to work — high rise office building, low rise office building, factory, etc.
- a place to buy things — bakery, restaurant, mall, store, etc., and
- a public place — library, museum, school, fire station, city hall, etc.

For example, the permit for a church — a public place — may allow it to be placed next to a school or a home, but not next to a factory. Once the engineering and construction services were completed, the children were paid for them in the coin of the realm — blue and silver Mardi Gras doubloons — minted for and provided by Louisiana Section and commemorating ASCE's 150th anniversary.

Both children and parents enjoyed this activity, as did the volunteers. It proved so popular there were not enough boxes supplied to accommodate all the participants. Necessity being the mother of invention, the children used Legos to create the buildings on 2 days of the 7-day *Jazzfest* event. We committee members staffing the activity were often astonished by the imagi-

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Happiness is . . .

Legos work too.

Thoughtful construction of a Lego building.

Urban sprawl in Box City is evident as parents with their children wait in line to engineer their contribution.

Innovative mortgages can help maximize wealth creation

By Paul C. Morgan

Total balance sheet management, that helps in the management of both sides of your personal balance sheet, can also help to create and maintain your wealth. If you own a home, there are now a number of liability management techniques involving residential mortgages that can help you make the most of your wealth creation opportunities.

Since the 1970s, mortgage and securities markets have evolved to such a degree that they have helped create an entirely new set of consumer loan products and services. Many of these are specifically designed to allow residential mortgage holders to keep their equity investments intact, avoid or delay recognition of capital gains and maximize monthly cash flow — all while retaining their real estate investments. For some homeowners, mortgage financing has become an important component of a total balance sheet strategy that focuses on creating wealth by managing both the asset and liability sides of their personal balance sheets.

Innovative concepts

Some innovative mortgage loans feature interest-only payment periods, rather than the more traditional method of paying down both principal and interest. Holders of these *interest-only* mortgages may find it easier to maintain their equity strategies by diverting the cash that would otherwise go towards reduction of mortgage principal to the purchase of additional securities.

Although investing in a residence is primarily a practical decision, based on your individual lifestyle needs, it also has the potential to build and store wealth through property appreciation, as well as principal paydown. The interest paid toward a residential mortgage and any capital gains realized on the sale of a primary residence both receive favorable tax treatment. This can transform the purchase of a home into a strategic investment decision that can enhance your overall investment strategy.

Home equity lending represents yet another possible method of strategic liability management. Many homeowners borrow against the equity in their homes to provide additional capital for use in a variety of purposes. For example, open-end lines of credit secured against residential property have been driving a move toward increased household liquidity since the mid-1980s.

For more information

If you are a homeowner who is interested in learning more about how an innovative mortgage can help maximize your wealth creation opportunities, please contact us.

Paul C. Morgan, Associate Vice President, Financial Advisor, is with Morgan Stanley in Covington, Louisiana (985)893-7772 or (888)893-2743. *This article does not constitute tax advice. Individuals should consult their tax or legal advisers before making any tax-related investment decisions. Any particular investment should be analyzed based on the terms and risks as they may relate to your circumstances and objectives. Information and data in this article were obtained from sources considered reliable and published for general information purposes. Their accuracy or completeness is not guaranteed and the giving of the same is not to be deemed a solicitation on the part of Morgan Stanley with respect to purchase or sale of securities or commodities.*

— Calendar of Events —

September 10-11, 2002	CAAL Concrete Seminar** in Lafayette.
September 12-13, 2002	The Louisiana Civil Engineering Conference and Show sponsored by the New Orleans Branch in Kenner, Louisiana in the Pontchartrain Center.
September 13, 2002	The Louisiana Section Annual Meeting hosted by the New Orleans Branch in New Orleans.
September 13, 2002	Tulane Engineering Forum: Energy and the Environment, in New Orleans. For more information telephone (504)835-8807 or e-mail jkottler@bellsouth.net.
September 12-13, 2002	Advanced Wastewater Treatment Activated Sludge Process Seminar sponsored by the ASCE Baton Rouge Branch in Baton Rouge. Details elsewhere in this issue.
September 17-18, 2002	CAAL Concrete Seminar** in Baton Rouge.
September 27, 2002	ASCE seminar* on designing aluminum structures in Dallas, Texas.
October 10, 2002	ASCE New Orleans Branch Structures Committee offshore seminar (tentative) in New Orleans.
November 7-8, 2002	ACI/PCA Seminar on ACI 318-02 *Building Code Requirements for Concrete Structures* in New Orleans. Register by telephone 248-848-3815 or on the web at www.concreteseminars.com.
November 12, 2002	ASCE New Orleans Branch Structures Committee light gauge metal building design seminar (tentative) in New Orleans.
November 17-20, 2002	First International Conference on Scour of Foundations sponsored by International Society of Soil Mechanics and Geotechnical Engineering in College Station, Texas. For more information e-mail briaud@tamu.edu.

* For more information, call ASCE toll free at (800) 548-2723 or visit the ASCE web page http://www.asce.org.

**Application of portland cement concrete for pavement, residential and precast pipe and bridge construction. For more information, call the Concrete and Aggregates Association of Louisiana toll free at (800)486-6179 or visit its web page www.caal.org.

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nation exercised by the children in selecting and decorating their buildings. Some even designed and built automobiles for homes and boats for marinas. There was even a snoball stand designed and permitted in our city!

The outreach committee is looking for other venues similar to *Jazzfest* to promote civil engineering for consideration as a career choice for children of all ages. If you know of an appropriate venue or if you are interested in volunteering, please notify Norma Jean Mattei, Chair of the Outreach and Student Activity Committee at 504-280-5414 or nmattei@uno.edu. Membership in the ASCE is not required to be a volunteer. Many ASCE members volunteered for the *Box City* activity with their family members. The hours worked may qualify for service hours for high school age volunteers and all volunteers got into *Jazzfest* free the day they worked allowing them to enjoy *Jazzfest* once they worked their shift. Outreach events and other New Orleans Branch events scheduled are posted on the Branch website, www.asceno.org.

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Robert J. Landry, Jr., PE, **Mickey L. Robertson,** PE, **Kevin M. Smith,** PE, **Hilary J. Thibodeaux,** PE, **Benjamin C. Thomas,** PE, **Roy E. Thomas,** PE, **John C. Wells,** PE, **Darrell K. Winters,** PE, recently earned their civil engineering license in Louisiana and are not members of the ASCE. A copy of this issue of the journal was sent to them as an informal introduction to the Section. If you are in contact with any of these engineers, please formally introduce them to the Section by inviting them to attend a branch meeting as your guest and to join the ASCE.

EDITOR'S JOURNAL

By James C. Porter, PE

Relevance of licensure

"As a non-engineer and observer of the engineering profession for almost 20 years," Arthur Schwartz, Esq., General Counsel for the National Society of Professional Engineers, penned his viewpoint of the engineering profession that appeared in the May 2001 issue of the *Engineering Times* published by the NSPE. He observes that

> The engineering profession may very well have a completely rational and justifiable licensure process, but based on the percentage of those licensed, it is apparently not necessarily viewed as relevant or practical by many who graduate as engineers. It is as if professional (licensed) engineering is being viewed by some as separate and apart from the engineering (practicing) profession rather than as a mechanism designed to be integrated into the entire profession.

Recent statistics indicate that only 1 in 5 or 20 percent of the 60,000 per year who receive a baccalaureate degree in engineering become licensed engineers. Schwartz acknowledges what many others believe is the singular most significant reason for the small portion of licensed practicing engineers — the industrial and government licensure exemptions allowed by most state statutes. Schwartz also notes that many engineers are employees who work under the umbrella of a licensed engineer in *responsible charge* of their work. I believe that Schwartz and many others tend to overlook another very significant reason. Many engineers go into *engineering related work* such as sales, contracting, construction, administration, management and other jobs where an engineering license per se may be prestigious to have but of no particular need since this work is generally outside of what is usually considered the practice of engineering and the reason for requiring licensure. This is unlike the medical and legal professions where career options and choices more typically require individual licensure to practice. Also, the majority of their practitioners engage in a more independent rather than a collaborative practice like engineering and they are more likely to be self-employed than employed like engineers. This appears to provide their professions with the critical mass of licensed practitioners that will support universally required licensure.

Unlicensed and licensed graduate engineers are typically employed and work in groups that can practically work under the umbrella of a licensed engineer if they are not otherwise exempt from licensure. Their work appears to be the equivalent of nurses, paralegals or technologists though they may perform the full range of professional services up to but not including applying their seal and signature to the engineering documents when required. I believe that this practice demonstrates the prevailing source of the perception that licensure is separate from the practice of engineering as Schwartz suspects. However, there are licensure issues related to regulation that include rules, enforcement, education, testing, and continuing professional development that I believe may significantly influence and reinforce this perception for both unlicensed and licensed engineers.

Inappropriate rules and enforcement

From my observations and perspective, I believe the engineering licensing board in Louisiana and possibly those in some other states have been used by their leadership either consciously or unconsciously to pursue an inappropriate agenda to discourage legitimate competition in the private practice sector. This is accomplished through the use of what appears to be an arbitrary rule for the use of the engineer's seal that is not consistent with normal practice and it is selectively interpreted and enforced by the board.

The boards rely almost exclusively on the professional integrity and personal recognizance of the vast majority of licensed engineers that survive the relevant and irrelevant hurdles they must to get licensed. They remain grounded professionals that historically do quite well without any interaction with the boards and little conscious application of their often convoluted rules. Inconsistent with the licensed engineers' demonstrated professional integrity, rules often appear to be written in specific instructions for unique cases that would normally be intended to direct untrustworthy simpletons rather than guide trusted, ethical and well educated professionals.

Ineffective testing requirements

Without ever having experienced the environment or the content of engineering practice outside of teaching theory, those in engineering academia are a — if not the — controlling force in the education and testing standards for licensure. It then should not be surprising if the content of the education and testing requirements for licensure are occasionally arbitrary and irrelevant to the practice of engineering thereby causing practicing engineers to suffer through inappropriate requirements.

It is incorrectly assumed for instance that the typical graduate engineer's education in the theoretical and application sense expands substantially and across the curriculum in 4 years of internship. This expectation has been reflected by the test administered *only* after completing the four-year internship. Most who have taken the test know that it tests what they learned in school, it would have been easier to pass it

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Real life filter

Thomas Sowell concluded one of his trademark columns, "random thoughts on a passing scene," published March 27, 2000 in the Baton Rouge *Advocate* with the observation,

"People who pride themselves on having ideas often fail to understand that only after ideas have been filtered through real-world experience do we know whether they are right or wrong. Most turn out to be wrong."

As someone who has enjoyed a plethora of mostly wrong ideas probably from an overactive imagination and maybe from too much spare time to use it, Sowell's observation touched a deep, resonant chord in my psyche. An area of substantive concern for me that has occupied my thoughts and has been the source of many of my ideas over the years has been that of my profession. As an engineer, I have come to experience just how much the individual engineer can actually influence the human condition. Even under the constraints imposed by client and regulatory authority, there is often substantial latitude in the engineering and just how an engineer solves problem-after-problem in the process. More pronounced is how the end results of this engineering can influence the lives of the generations of people that will interact with the engineered works.

How the engineering profession develops as a profession and ultimately affects the character of the practice of the individual engineer that ultimately influences the human condition and how much impact I or anyone else may individually have on that direction becomes a moot issue in the context of Sowell's observation. The important issue is that my ideas concerning my profession find a relevant filter either through application or through simulation drawing on real-world experience. Instead of just mumbling and grumbling about how the prevailing values in my profession don't square with what I believe and leave it at that, there is a practical alternative — active participation in a society of professional engineers. It provides both formal and informal forums that consist of proactive people who are often as outspoken and as obstinate as I am — an excellent if not exasperating medium through which to filter my ideas.

Exposing ideas to the light of day and exploring them in an energetic forum of fellow professionals who together bring into the mix a wide range of experience in the engineering profession does something for ideas and for the people who espouse them. With competing ideas, agreeing ideas and shared ideas cast into the caldron of the forum, they are stirred like the letters in alphabet soup. Ideas merge here and separate there — they are accepted here and rejected there. Then something almost unexpected happens, the ideas and the people who espouse and debate them grow. They mature into something — someone — clearly different that is not compromised but an enhanced version. It is a product of the shared journey by engineer professionals that also share essentially the same basic concerns and principles, if not always the same ideas and experience.

Professional civil engineering school

The sufficiency of the civil engineering curriculum to provide the cohesive and important components of the knowledge, skills and ability required to effectively launch an engineering practice is perceived by many practicing civil engineers outside of academia as inadequate and declining. The additional resources in the workplace required to compensate for this inadequacy and develop a competent entry level civil engineer practitioner both technically and professionally are not available in the overhead of the many smaller organizations that typically employ civil engineers. This often places the larger civil engineering organizations with adequate overhead resources in the exclusive role of developing entry level practitioners from which the smaller organizations hire experienced practitioners.

The organizations that typically hire graduate engineers other than civil engineering graduates are large industries that have substantial overhead resources to devote to completing the baccalaureate education of their graduate engineer hires. They immediately provide a continuing education that rounds out the graduate engineer's education consistent with their particular needs and reinforced with on-the-job training. For this reason, the current and shrinking undergraduate engineering curriculum outside of civil engineering is deemed adequate by the industrial customers served and there is no reason or support to expand the engineering curricula outside of civil engineering.

The adverse reaction from some recent civil engineering graduates to the proposal to expand the civil engineering curriculum they just completed may be justified. Obviously, they cannot know collectively the whole answer to what is relevant in the curriculum they just completed or in an extended engineering curriculum because they cannot know what is to come in their ongoing professional development. However, many that have actually applied the contents of their curriculum on the job have probably experienced the immediate deficiencies of their education. From this experience, they may intuitively understand the basic limitations in their education that would suggest an extended curriculum of more of the same will likely provide little of what they need to effectively launch their practice.

The formation of a professional civil engineering school is envisioned that may allay the recent graduates' concerns. It would be open to those who have or maybe to some degree have completed a 4-year baccalaureate degree in civil engineering and it would approach addressing the immediate and possibly future needs of the civil engineering profession. The civil engineering components of the prerequisite, 4-year baccalaureate curriculum would continue to be taught by the PhD professors in the traditional civil engineering department and consist of the fundamental civil engineering analysis courses that would not significantly benefit from an

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immediately after graduation, and the study required to pass it is often not supplemented in practice over the 4-year internship where typically a narrow application of technology is experienced.

I have steadily maintained since I took the test in 1969 that this requirement was inappropriate and that the only significance of this test is that one passes it and not when. The most ridiculous aspect of the timing of this test is that is does not protect anyone or prove anything more except that a graduate engineer can study and remember enough of what was taught four years earlier to pass it. Some boards ludicrously deny comity to those who take and pass this test one nanosecond prior to the completion of their four-year internship.

Inadequate education

Engineering academia is populated almost exclusively by PhDs who have never practiced engineering and their students are often taught little about engineering practice and an inadequate amount of engineering theory in a severely abbreviated baccalaureate curriculum. Engineering academia has so vigorously separated itself from the practice of engineering that — as a whole — I believe that it holds in low esteem those who do and the students who will practice. Thereby, it subtly or openly eschews the importance of licensure through an elitist attitude. This may be reflected in the culture shock graduates often experience in the transition between student and practitioner in terms of the actual demands on their resources and the unexpected, prevailing attitudes in the practicing profession.

The sufficiency of the civil engineering curriculum to provide cohesive and important components of the knowledge, skills and ability required to effectively launch an engineering practice is perceived by many outside of academia as inadequate and declining. The additional resources in the workplace required to compensate for the inadequacy and develop a competent entry level practitioner both technically and professionally are not available in the overhead of the many small organizations that typically employ civil engineers. This is unlike the large industries that typically hire and substantially train engineers other than civil.

The adverse reaction from some recent civil engineering graduates to the proposal to expand the civil engineering curriculum may be justified. Obviously, they cannot know the whole answer to what is relevant in the curriculum they just completed or in an expanded engineering curriculum because they cannot know what is to come in their ongoing professional development. However, many that have actually applied the technical contents of their curriculum on the job have probably experienced the immediate deficiencies of their education. From this experience, they may intuitively understand the limitations in their education that would suggest an expanded curriculum of more of the same will likely provide little of what they need to effectively launch their practice.

It seems that experienced engineers who may collectively hold valid answers to a substantial part of what is a relevant engineering curriculum appear to be so self-absorbed in their practice that they don't make a difference. This does not consider that those in control often demonstrate they are not really interested in what anyone else may have to contribute anyway.

Low quality continuing education

Recent experience in Louisiana and a sister state with mandatory continuing *professional development* would suggest that offerings are less than the serious continuing education intended to support professional competency. Much of the standard fare may be better described as mandatory continuing socialization at worst and career enrichment at best. Neither would appear to address the alleged inadequate effort made by the undefined *some* in the profession to maintain competence — the *justification* for mandatory continuing professional development. The only encouraging thing about mandatory continuing professional development may be that it attempts to fix that which isn't broken with something that doesn't work.

For some engineers that have to seriously maintain current competency through independent study, mandatory continuing professional development is little more than an expensive time-consuming nuisance that adds little to the specific, practical knowledge they need to acquire to advance their practice. If the low standards for the continuing professional development offerings — particularly those at the bottom of this spectrum — continue unaddressed, they will only serve to discredit the relevance of licensure to the practice of engineering.

Conclusion

I believe that engineering licensure should be as Schwartz suggests "...a mechanism designed to be integrated into the entire profession..." Except for the industrial exemption, I believe that this is the spirit and the intent of the licensing law in Louisiana. However, I also believe the application of the law — particularly the rules and enforcement — in some incidences subvert the spirit and the intent of the law. I also believe that Schwartz is correct when he observes that "The engineering profession may very well have a completely rational and justifiable licensure process." However, it appears that the rationale and justification used resulted in rules that drive the perception that there is a difference between licensure and the practice of engineering. This greatly voids opportunities and incentives to integrate licensure into the entire profession. The economics of the growing inappropriate and/or irrelevant requirements to maintain licensure may encourage competent, licensed engineer employees and their employers to let licenses lapse and work under the umbrella of fewer licensed engineers in responsible charge.

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instructor with practical experience. The remainder of the baccalaureate curriculum would be supplemented with expanded technical and liberal arts electives. The purpose of the civil engineering school curriculum would immediately reduce, if not eliminate, the deficiencies in education that cannot be supplemented by the typical civil engineer employers giving them immediate access to useful graduate civil engineers.

The curriculum offering of the civil engineering school would be the design courses in the undergraduate and graduate curricula that would significantly benefit from an instructor with practical experience. Other significant courses that may have long been dropped or abbreviated concerning plans and specifications development, material testing, engineering related law, senior project can seriously be reconsidered. The successful completion of a one-year civil engineering school curriculum would be a requirement to become a licensed civil engineer and it would also be allowed as one year of the four years of progressive engineering experience toward a civil engineering license.

The civil engineering school should be preferably staffed exclusively by part-time, adjunct instructors who are experienced and active practicing civil engineers with at least an MS and preferably a PhD degree related to the subject(s) they teach. Full-time instructors, though less desirable, should be acceptable with a PhD degree and at least 4 years of progressive engineering experience related to the subject(s) thay teach. Their 4 years of progressive engineering experience would not include any teaching experience or any experience exemption for a graduate degree, and the experience should be carefully screened for the practical experience related to the subject(s) they teach. All instructors would be expected to competently teach current practice-oriented versions of the adopted undergraduate and graduate design courses and actively develop and redevelop the practice-oriented civil engineering school curriculum. Instructors should not be required to publish or conduct research as a condition of employment or advancement and their employment would not be on a tenure track.

With a civil engineering school in place and stabilized by a one-year curriculum from its course offerings as a requirement to become a licensed civil engineer, other opportunities are opened. The breadth of the design and practice-oriented courses offered can be expanded. And if deemed appropriate in the future, educational requirements for licensure could be easily expanded by additional curriculum requirements in the civil engineering school. The design and practice-oriented courses offered should be made readily available in evening classes for continuing education opportunities for licensed engineers who may be planning or experiencing a career change. This would also offer the opportunity for attendance by some working engineer interns meeting their one-year civil engineering school curriculum requirement on a part-time basis while simultaneously meeting their required three years of progressive engineering experience — possibly a more preferable way.

— net surfing—

ASCE national organization:
http://www.asce.org

Note: Most ASCE-related pages can also be addressed through links at this website. All section and branch officers are listed at:
http://www.asce.org/gsd/localofficers

ASCE Acadiana Branch:
http://www.asceacadiana.org

ASCE Baton Rouge Branch:
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(Continued from Page 7)

Catherine and Henry Boh Fellowship in Civil Engineering. Scheuermann is presently Assistant to the Division Manager of Boh Brothers Construction Company.

In 1989, an analytical research investigation was initiated into the fatigue life of partially prestressed concrete bridge girders. The research was conducted by Ward Nicholas Marianos, Jr. Marianos served as Chairman of the ACI-ASCE Joint Committee on Prestressed Concrete. In that capacity, he spearheaded the effort to produce the American Concrete Institute report on the *State-of-the-Art of Partially Prestressed Concrete*, published in 2000. Marianos is presently a Senior Associate in the firm of Modjeski and Masters Inc., and Manager of its St. Louis Office.

1990-2000 *Feasibility evaluation of high strength concrete; optimized sections for high strength concrete (HSC) bridge girders; design and construction of extra high strength concrete bridges; optimization of the utilization of HSC through post tensioning; implementation of the application of high performance concrete (HPC) for Louisiana bridges.*

In 1990, a feasibility evaluation of utilizing

Figure 7. AASHTO Type II test girder in the test frame in the PCA/CTL facility.

Figure 11. Bulb-tee girder is shown in the test rigging in the PCA/CTL facility.

(Continued from Page 22)

high strength prestressed concrete in the design and construction of highway bridge structures was initiated by Tulane and sponsored by the Louisiana Transportation Research Center and the Federal Highway Administration. The investigation was to last 5 years and included a comprehensive evaluation of high strength concrete.

A principal objective of the research was to determine if concrete having a compressive strength of 10,000 psi could be produced consistently using existing fabrication procedures with local materials. In the investigation, prestressed concrete piles up to 130' in length were tested under driving conditions, while other pile lengths were tested statically in flexure. As part of the project, 5 full-size prestressed concrete bulb-tee girders 70' in length were fabricated and tested. Since the Tulane experimental research frame could not accommodate the 70' test specimens, a collaborative effort was implemented with PCA/CTL to test the girders as shown in Figures 11 and 12.

As a result of the investigation, it was recommended that high strength prestressed concrete having a compressive strength up to 10,000 psi should be utilized in the design and construction of a prototype bridge. It was also recommended that this bridge should be instrumented and monitored to determine long term behavior.

The Tulane student involved in this research was Barney T. Martin. Martin is presently a principal in the firm of Modjeski and Masters Inc. and in charge of the firm's New England operations. This project received the Engineering News Record Medal of Excellence for research.

The recommendation to utilize high strength concrete in a prototype bridge was followed, and in 1997 a major implementation effort was launched leading to the design and construction of Louisiana's first bridge designed and constructed of high strength concrete (HSC) and high performance concrete (HPC). The distinction between HSC and HPC is the former design is based on strength and the latter design is based on durability. Two efforts, one research and one design/construction, proceeded concurrently over a 4-year period.

The prototype bridge structure was built across the Charenton Canal at the intersection with Bayou Teche in Charenton, Louisiana. It was the subject of the feature article in the May 2000 issue of *The Louisiana Civil Engineer* and featured in the July/August 2000 issue of the *PCI Journal.* The overall effort was successful, gaining international recognition and receiving multiple awards from the American Concrete Institute.

The Tulane students involved in the project included Bryan M. Hassett and Katherine Kleinpeter. Hassett is presently employed by Modjeski and Master Inc. in the firm's New Orleans office.

Another project of unique interest involved a collaborative effort between Tulane and the Technical University of Budapest. The research consisted of an investigation of the optimization of the utilization of high strength concrete through post-tensioning. The project was sponsored by the U.S.-Hungarian Joint Scientific Fund. The Hungarian administration was carried out by Istvan Bodi of the Technical University of Budapest.

In this same decade, an investigation of optimized sections for high strength concrete bridge girders was conducted by Henry Russell for the Federal Highway Administration, with Tulane participation. Two additional projects involving the design and construction of bridges with some extra high strength concrete with a compressive strength up to 14,000 psi were conducted by the University of Texas, with Tulane participation.

2000-2002 *Fatigue and shear behavior of 96' HPC bulb-tee girders.*

In 2000, a research investigation was launched into the fatigue and shear behavior and strength of high performance prestressed concrete bulb-tee girders, using HPC girders 96' in length and weighing 200 tons each. The girders were fabricated at the Pass Christian facility of Gulf Coast Prestress Inc. and trucked to the PCA/CTL facility in Skokie, Illinois. The girders cleared the entrance to the laboratory with only six inches to spare. One of the HPC test girders is shown in Figure 13 undergoing fatigue testing. The project is ongoing and expected to be completed in 2002. Tulane engineering students involved in the project include Katherine Kleinpeter Raymond and Cullen Ledet.

Conclusion

Prestressed concrete research was initiated at Tulane in its Civil Engineering Department over a half-century ago. This period represents half of the life span of Tulane's School of Engineering. At that time, no conventional prestressed concrete structures are believed to have been in existence in America. The prestressed concrete industry has grown into a multi-billion-dollar industry and is still going strong. The Tulane family can take pride in the fact that its School of Engineering was there at the beginning. It has continued to contribute to the healthy technological understanding of prestressed concrete, providing confidence in the product and stimulating the growth of the prestressed concrete industry.

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Figure 12. Bulb-tee girder is being tested in the PCA/CTL facility.

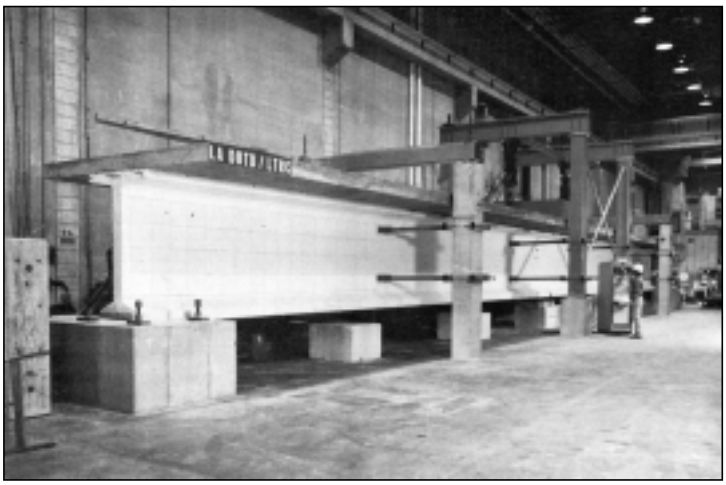

Figure 13. Bulb-tee girder is being tested for fatigue in the PCA/CTL facility.

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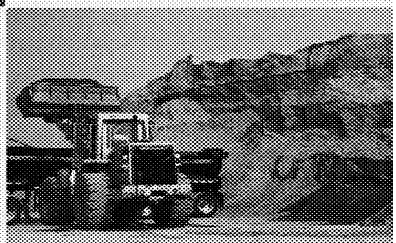

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