



# THE FORGE

Newsletter of the Birmingham Branch of ASCE

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## Meeting Information for May 1<sup>st</sup>.

Our monthly meetings are held at the Altadena Valley Golf and Country Club off of the Acton Road exit on I-459. The meeting will start at 11:30 am as always.

The Branch is responsible for lunch, so we need an accurate head count a week before the meeting which means we have to let the club know the **Thursday** before each meeting. The price is \$14.00 which you can pay to the Branch Secretary/Treasurer at the meeting or online at our website.

The Club's address is 2651 Alta Vista Drive, Birmingham, Alabama 35243 and can be reached from the Acton Road exit just west of Highway 280 on I-459. The club's phone number is 205.967.5322. Please visit the website for maps and directions from your location.

## Presenters Lined Up So Far

Month	Speaker	Topic
May, '08	Ken Fridley	The state of ASCE and Region 5
June, '08	Dan Howard	War for Talent

## A Message from the President

By Jonathan Byrd



*“Lotus 123 was all the rage.”*

In last month’s Civil Engineering magazine there was an article about replacing the cables of a cable-stayed bridge that crosses the Mississippi River. At the time of its construction, this was the longest cable-stayed span, and was the first cable-stayed bridge across the Mississippi. This also means that this bridge was one of the earliest cable-stayed bridges. I found this article to be fascinating for a rather odd, completely different engineering, reason.

When I began my engineering education, one of the classes required at the University of South Alabama was Introduction to Civil Engineering. It was not a technical class, nor was it a “weed-out” class. It was simply a way of introducing entering freshmen to the career choice they were making. It was my first introduction to a spreadsheet (Lotus 123 was all the rage) and who could have made it through engineering school without a spreadsheet? The “textbook” for the class was a book by Henry Petroski, “To Engineer is Human” an interesting book that explained how engineers use failure to move forward designs. When a design fails, it fails for a reason. If that reason can be determined, it can be designed around, and the design is improved. Sometimes this means minor failures, but for the purpose of his book, it was catastrophic failures. The skyway bridge in Kansas City, Tacoma Narrows Bridge, the Crystal Palace—not so much a failure as an example of quality control success. This hammered home the fact that doctors can kill their patients only one at a time, but an engineer can kill hundreds in one fell swoop (or just one dog in the case of the Tacoma Narrows). I know I am one of the few people who had a non-textbook assigned for a textbook that actually read the book cover to cover (did it for many classes). Over the years, I have re-read this book, and have recommended it to others. My old copy of it is yellowing with age, but the lessons inside are just as poignant.

Normally, when someone begins to write the paragraphs flow together nicely. This article is so far off track that to connect these two issues, the replacement of cables and a book on engineering failures, may seem to be difficult. However, I will try. Each major change in engineering design for bridges reached a point at which its use was slowed or stopped by a catastrophic failure. The first iron and steel bridges underwent radical changes to their designs after a series of collapses that they had. Going back, far enough in history there is not a good set of notes on it, but I feel confident that the arched stone bridges had similar issues at some point in their life cycle. The design of the capstone (not the school in Tuscaloosa) had to have been an iterative and not an intuitive process. Every engineering student has seen the video of the Tacoma Narrows Bridge in 1940. The lack of trust in engineers after that was huge. When living in Washington State, I saw many things that were built in the early to mid 40s that were so over-engineered it was pathetic. I even went into a one-story hospital, it was sprawling to include all the wards and clinics that a hospital needs, but the lack of trust in engineer’s ability to design was so great this thing was built on the ground. Cable-stayed bridges have yet to undergo that major catastrophe.

In an earlier article, I wrote about the wonderful duality of engineers. How we can know something is perfectly safe as an engineer, like living next to a nuclear power plant, but would never do it as a human. For quite a long time I did not drive across cable-stayed bridges just in case. Of course, the reality of it is that we only have one cable-stayed bridge in Alabama and I never drive near the Afrikatown Cocharane. The first time I had a chance to drive across one I not only jumped on the chance, I turned around and immediately drove back over it. They are truly beautiful bridges. While it was not my first, the most beautiful cable-stayed bridge I drove over was the Leonard P. Zekihim Bunker Hill Bridge built as a part of the Big Dig. Yes, I even drove through the Big Dig AFTER the infamous ceiling tile disaster, but I did not tell my wife about the incident until we were safely back in Alabama.

While it would be nice to presume that engineers have found the “fatal flaw” in our design of cable-stayed bridges, it is probably more accurate to say that we have merely postponed the inevitable major cable-stay catastrophe. In the meanwhile, we continue to move forward with the hope that we will find the issues before they become problems, but we need to continue to use history as a predictor of the future.

## Message from the nominating committee

*Joe Meads*

*Nominating Committee Chairperson*

It's time to elect officers for the Birmingham Branch of ASCE. The nominating committee, consisting of Joe Meads, Shelia Bittas, and Bobby Nolen, has been given the task to nominate the officer slate. The committee has requested both the current Vice President and Secretary-Treasurer to move up to the positions of President and Vice President, respectively. We seek a member to nominate for Secretary-Treasurer.

This is your opportunity to participate in the leadership of the Branch. Have you been thinking of ways the branch can improve but have not felt as if you have the opportunity to make the change? Now is your chance! Become an officer and help the branch to face the challenges ahead.

Or do you know a member you have observed who works hard for the Branch, exhibits leadership skills, and might agree to be a candidate? If so, please recommend that person, and the Committee will discuss with that member the possibilities of becoming a nominee.

The committee is also looking for nominees to fill the position of the Birmingham Area Director on the Board of the Alabama Section ASCE. Are you up to this challenge? Just think of the opportunity this would be.

The Engineering Council of Birmingham (ECOB) is looking for anyone interested in filling the position of Vice President, Secretary, and Treasurer.

Are you interested in making a difference in any of these organizations? If you are, please contact the nominating committee. We will appreciate your input.

Please contact the nominating committee on or before the end of the day Friday April 25th, 2008.

The members of the committee can be contacted at:

Joe Meads, 936-9689, [joemeads@sain.com](mailto:joemeads@sain.com)

Bobby Nolen, 529-3390, [reepicheep@charter.net](mailto:reepicheep@charter.net)

Shelia Bittas, 936-4064, [skbittas@aol.com](mailto:skbittas@aol.com)

## Cement Demand Expected to Soar

*From GoStructural.com News*

The U.S. population is expected to reach 363.5 million persons by the year 2030. That will be 63 million more people that will need homes, schools, hospitals, and roads. So what does this mean for the cement industry? It means, a huge growth in U.S. cement consumption by that year.... 43-percent growth to be exact.

According to Edward J. Sullivan, PCA chief economist, annual cement consumption will hit 183 million metric tons, reflecting a 55-million metric ton increase compared to the past cyclical peak level in 2005.

While 50 percent of the rise in cement consumption is due to population growth, the remaining half will be driven by per capita cement consumption.

Highway construction, which accounts for 30 percent of total annual cement consumption, is expected to incur large growth due to the expected additional 49 million drivers. That means at least 400,000 additional lane miles of highway must be added by 2030 to accommodate these drivers. In addition, efforts to reduce congestion and "wasted" fuel and its associated emissions could further increase the number of miles. Other factors affecting cement demand are energy and environmental concerns. An example is houses built with insulating concrete form walls (ICFs) which can require up to 44 percent less energy to heat and 32 percent less energy to cool than comparable frame homes. As the demand for energy-efficient homes rises, so will the insulated concrete wall market share, which is expected to increase to 30 percent for all new homes, compared to its 7-percent share today.

## Summer Conference 2008

WHEN: Wednesday July 30, 2008 - Friday August 1, 2008

WHERE: Perdido Beach Resort, 27200 Perdido Beach Boulevard, Orange Beach, AL 36561

Phone: (251) 981-9811

Toll Free: (800) 634-8001

[www.perdidobeachresort.com](http://www.perdidobeachresort.com)

Block rates available, ask for American Society of Civil Engineers

We are currently filling the speaker slots if anyone has a topic or speaker they would like to hear we will try to include it as a technical presentation. For suggestions, please contact Kendall Kilpatrick at

[Kendall.Kilpatrick@hatchmott.com](mailto:Kendall.Kilpatrick@hatchmott.com)

*A common mistake that people make when trying to design something completely foolproof is to underestimate the ingenuity of complete fools.*

*- Douglas Adams -*

## Birmingham Branch Members Serving on National Committees

We are pleased to provide a roster of Birmingham Branch members serving on Technical, Professional, Educational, Research, Board, and Institute Committees at the National level. These committee members could potentially:

1. Provide your Section with up-to-date information on the activities and programs of their National Committees;
2. Serve as a liaison between the National Committee and your Section; and/or,
3. Facilitate and encourage involvement of your local members at the National level.

<u>NAME</u>	<u>COMMITTEE NAME</u>	<u>ASCE ENTITY</u>
Wilbur Hitchcock	Committee on Critical Infrastructure (CCI)	ASCE Board of Direction
Richard Woodruff	Past & Active Officers	ASCE Board of Direction
Nasim Uddin	Council on Disaster Risk Management	Technical Activities - Council on Disaster Reduction
Nasim Uddin	Technical Committee on Mitigation Pre and Post-Disaster	Technical Activities - Council on Disaster Reduction
Duane Castaneda	Fossil Generation Committee	Technical Activities - Energy Division
George Jones	Fossil Generation Committee	Technical Activities - Energy Division
Carl Toner	Fossil Generation Committee	Technical Activities - Energy Division
Ralph Carpenter	Trenchless Installation of Pipelines	Technical Activities - Pipeline Division
Randall Conner	Trenchless Installation of Pipelines	Technical Activities - Pipeline Division
Ralph Carpenter	Construction Guidelines for Microtunneling Standards	The Construction Institute
Fouad Fouad	Direct Design of Buried Concrete Pipe Box Sections Standards	The Construction Institute
Sinem Gokgoz-Kilic	Ground Water Management	The Environmental and Water Resources Institute
Willie NeSmith	Deep Foundations	The Geo Institute
Fouad Fouad	Design of Distribution Pole Standards	The Structural Engineering Institute
Michael O'Reardon	Design of Engineered Wood Construction Standards	The Structural Engineering Institute
Terry Mc Annally	Design of Steel Transmission Pole Structures Standards	The Structural Engineering Institute
Marshall Ferrell	Design Steel Building Structure	The Structural Engineering Institute
George Jones	Fiber Composites and Polymers Standards	The Structural Engineering Institute
Sam Eskildsen	Minimum Design Loads for Buildings and Other Structures	The Structural Engineering Institute
Jerry Salmon	Minimum Design Loads for Buildings and Other Structures	The Structural Engineering Institute
Sam Eskildsen	Prestressed Concrete (W/ACI 423)	The Structural Engineering Institute
Robert Wills	Structural Design for Fire Conditions Standards	The Structural Engineering Institute
Charles Machemehl	Highway Pavement Committee	The Transportation and Development Institute

## Newsletter Sponsors – Thank You



www.saiia.com

Don't see your company's name here? Support your branch! If you would like to advertise in next month's issue, please contact John Clark @205.321.1320. The newsletter reaches over 500 engineers, scientists and potential clients in the Birmingham area every month.

## Contact Information

### President

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### Vice President

Andy Faulk, P.E.  
Wiser Company  
205.942.2822  
[afaulk@wiserco.com](mailto:afaulk@wiserco.com)

### Secretary/Treasurer

John Clark  
QORE  
205.321.1320  
[jwclark@qore.net](mailto:jwclark@qore.net)

Do you have something to say? Let's hear it, and maybe your thoughts will be in the next newsletter.

You can now paid Dues online at <http://branches.asce.org/birmingham/>

**PLEASE RETURN THIS STUB WITH PAYMENT:**

DUES: ASCE Birmingham Branch (2008) Total Due: \$10.00(Tax Id. No.63-0371391)

MAKE CHECK PAYABLE TO: ASCE-Birmingham Branch

P.O. Box 190366, Birmingham, AL 35219

Name: \_\_\_\_\_ email: \_\_\_\_\_

Company: \_\_\_\_\_ Phone: \_\_\_\_\_

Interested in volunteering your time? \_\_\_\_\_

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