



Illinois Section
Founded 1916



INSIDE:

President's Notes

2

ASCE National Sustainability Initiatives

3

Section Activities

6

News & Secretary Report

9

**Advertise in the
Illinois Section
Newsletter
and reach
Civil Engineers in
the Chicago Area.**

*For details email
Brian Pawula,
Director of
Advertising, at*

brianp@thomas-engineering.com

ASCE Illinois Section

News

Vol. 53, No. 2
February 2012

The Illinois Institute of Technology Keeps Transportation Research Moving

By John Gregory Green, Ph.D., P.E.

Leaving the Loop and driving south on the Dan Ryan Expressway towards Indiana, as most people approach 35th Street and its Bronzeville EL stop, they notice the home of the Chicago White Sox, U.S. Cellular Field. Increasingly, however, more are taking notice of the Illinois Institute of Technology and the Transportation Research conducted there.

The Illinois Institute of Technology (IIT) was founded in 1890 at a time when America was transitioning from a country of small farms into a nation of industry. Technological advances in all areas of business were requiring an increasing level of technical knowledge in our nation's business leaders. At that time the

(continued on page 4)



Figure 1: IIT Main Building

President's Notes *William Cussen, P.E., LEED AP*

President's Notes *William Cussen, P.E., LEED AP*



The last two President's Notes have been heavily focused on the political activities of the Section and I promise to stay away from that this month.

National Engineers Week is February 19th through 25th, the Section will be involved at numerous events throughout the area. Some of the activities which will be taking place that week

include the EWEK Expo at the IIT-Rice Campus, Bridge Building Contests, and Mathcounts. These programs are geared towards middle school and high school aged students. The Washington Awards will be held on Friday February 24th and the winners of the local Future Cities Competition will be recognized then as well as the Presentation of the Washington Award to Martin Cooper the inventor of the cellular telephone. To help encourage the next generation of engineers, please visit <http://www.aceville.org> (as it has great activities for children) and pass the link along to your neighbors and teachers.

The Section is continuing to update itself to reflect the needs of our members, our industry and the way

National Engineers Week is February 19th through 25th, the Section will be involved at numerous events through out the area

we communicate. If you have any recommendations as to what you would like to see if future newsletters (articles, seminars, advertisements, etc...) please let me or the Newsletter editor, **Bryan Luke**, know. You can e-mail me at bill-c@haegerengineering.com.

ASCE

ASCE Illinois Section News

ILLINOIS SECTION NEWSLETTER

Mailed to all ASCE-IS dues-paying members
American Society of Civil Engineers
Illinois Section – Region 3

**Communications Chair/
Newsletter Editor –
Bryan Luke**

Christopher B. Burke Engineering, Ltd.
9575 W. Higgins Road, Suite 600
Rosemont, IL 60018
847-823-0500
bryanluke@cbbel.com

**Director of Advertising –
Brian Pawula**

brianp@thomas-engineering.com

Pres. William Cussen (847) 394-6600
Pres.-Elect Lou Arrigoni (312) 345-8681
Sec. Patrick Lach (773) 792-8510
Treas. Mike MacKinnon (312) 878-4854

Please update your information at www.asce.org/myprofile or call 1-800-548-2723

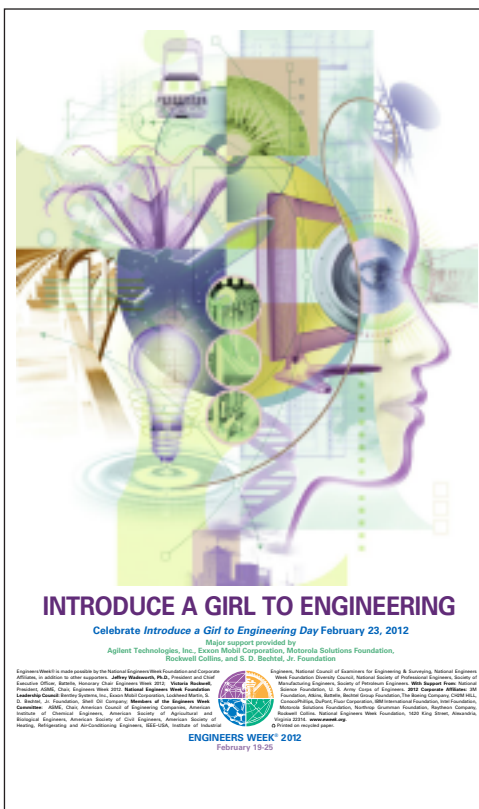
Web Site: <http://www.isasce.org>

ASCE National Information

Phone: 1-800-548-ASCE
Web Site: www.asce.org



**ENGINEERS
WEEK® 2012**
February 19-25



ASCE National Sustainability Initiatives

By Darren Olson, P.E. CFM, D.WRE

As many of you are aware, in April 2010 the Illinois Section formed a Sustainability Committee to promote ASCE National's Sustainability Program with the local membership and other key regional stakeholders. The Illinois Sustainability Committee is one of 12 Section Sustainability Committees throughout the nation. Our committee has been very active, putting on a seminar in June 2011 that was attended by more than 100 engineers and environmental professionals. The committee is planning another local seminar in June 2012, hoping to make the June seminar a yearly tradition.

ASCE Committee on Sustainability

ASCE National has also been active in pushing forward its Sustainable Policies by means of its Committee on Sustainability. ASCE defines sustainability as "A set of environmental, economic and social conditions in which all of society has the capacity and opportunity to maintain and improve its quality of life indefinitely without degrading the quantity, quality or availability of natural, economic, and social resources." Toward that goal, the ASCE Committee on Sustainability has developed a Fundamentals of Sustainable Engineering course designed to give engineers a framework for strategic design and implementation of sustainability.

The course covers critical issues associated with the Triple Bottom Line approach to sustainable infrastructure development, which calls for the support of economic growth, social progress and environmental stewardship on all projects. Through photographs, diagrams, videos and

discussions, the course will cover the body of knowledge required to design and deliver sustainable infrastructure projects. The course will also cover problems and issues associated with sustainable development, as well as the misperceptions.

The online course will also include life cycle cost and benefit assessments, probabilistic and sensitivity analyses, benefit-to-cost ratios and comparing incommensurate benefits and costs. Case studies and examples are used throughout the course to highlight the concepts and incorporation of the Triple Bottom Line in real-world projects.

For those interested in the Fundamentals of Sustainable Engineering course and other ASCE National Sustainable initiatives, please visit: <http://www.asce.org/sustainability/>

Institute for Sustainable Infrastructure (ISI) and Envision™ Rating System

ASCE has also teamed with the American Council of Engineering Companies (ACEC), the American Public Works Association (APWA) and the Harvard University's Zofnass Program for Sustainable Infrastructure to form the Institute for Sustainable Infrastructure (ISI). The Institute for Sustainable Infrastructure (ISI) is a 501(c)(3) non-profit corporation founded to develop and deliver a civil engineering infrastructure sustainability rating system as an element of a broader initiative to promote and deliver more effective and efficient engineered solutions to society.

The ISI *Envision*™ rating system is founded on the "triple bottom line" concept of sustainability, which includes

environmental, economic and social considerations, and it is designed to identify the benefits of sustainable practice for owners, regulators and practitioners. The goal of the rating system will be to improve a project's social and environmental performance, while also accounting for economic benefits and creating a better long-term value for communities. The rating system will follow a two-pronged approach:

- **Pathway Contribution:** "Doing the right thing" with the community as the common denominator
- **Performance Contribution:** "Doing things right" or engineering high-performing projects

The new sustainable infrastructure rating system will evaluate, grade and give recognition to infrastructure projects that provide progress and contributions for a sustainable future. Unlike other systems, the ISI system will include an option for third-party verification, and will be applicable to a wide range of infrastructure projects, from roads and bridges to energy and water systems. Its purpose is to foster a necessary and dramatic improvement in the performance and resiliency of physical infrastructure across the full dimensions of sustainability: economic, social and environmental. The initial versions of the rating system have been developed by contractors under the guidance of the Founding Partners and draw on a comprehensive review of the state of the art in sustainability rating systems both in the United States and around the world. Many resources and similar rating systems and sustainability programs have been referenced including those of International Federation of Consulting Engineers (FIDIC) and Civil

(continued on page 5)

The Illinois Institute of Technology Keeps Transportation Research Moving

(continued from page 1)

high cost of tuition placed a college degree out of the reach of most Chicagoans, as well as most Americans. A local minister, Frank Gunsaulus, saw the need for higher education increasing and he encouraged the leaders of industry to found a school where students from all economic backgrounds could be prepared to guide the changing society as it progressed forward. In this environment Philip Danforth Armour, Sr. donated \$1 million dollars to establish the Armour Institute, which opened in 1893 in the current location, offering courses in engineering, chemistry, architecture, and library science. Roughly at the same time, 1895, on the west side of Chicago the Lewis Institute was established. In addition to science and engineering courses, the Lewis Institute offered liberal arts degrees. The Lewis Institute merged with the Armour Institute in 1940 to become the current Illinois Institute of Technology. The Armour College of Engineering of the Illinois Institute of Technology carries forward the original mission of the school by providing a top-quality engineering education to students of all backgrounds. Today, Armour College is led by approximately 90 full-time faculty, who mold the minds of more than 2,400 undergraduate and graduate students.

In the past five years, under the direction of Dr. Zongzhi Li, PE, the Transportation Research Group at IIT, has performed research worth in excess of \$3.5 million. This research has been in the fields of Transportation Assets Management, Urban/Metropolitan Mobility and Congestion Relief Analysis, Transportation Safety, and Transportation Security.

Transportation Asset Management seeks to balance transportation infrastructure performance, safety, security,



Figure 2: IIT EL Stop

and construction and maintenance costs. The research conducted at IIT in this area concerns finding better methods of pavement, bridge, and safety hardware management. To this end risk and uncertainty have been studied in travel demand, project costs, and discount rates so that decision makers can make better informed transportation investment choices. One noteworthy IIT Transportation Asset Management research project developed a new method for transportation project life cycle cost analysis, and it was awarded the 2011 Arthur M. Wellington Prize by the American Society of Civil Engineers.

Because of the real estate constraints of urban areas, roadway traffic congestion problems are persistent and difficult to solve by traditional widening solutions. Therefore, IIT researches creative ways to increase the capacity of Chicago's

streets and highways without adding traffic lanes. One such idea is the continuous flow queue jumper systems, which substantially improves the capacity of traffic flow through intersections. The research has proven fruitful, and this past September IIT's research led to a U.S. patent.

On the subject of Transportation Safety, IIT has been diligently working to develop innovative solutions for the mitigation of safety risks on urban and rural roads. As road construction areas pose significant dangers on their own accord, construction zone safety specifically has its own research projects. One noteworthy IIT project involves developing the National Highway Work Zone Safety Audit Guidelines.

Transportation Security concerns have taken on new importance in the past

(continued on page 5)

The Illinois Institute of Technology Keeps Transportation Research Moving

(continued from page 4)

decade. The Illinois Institute of Technology, in a joint effort with the Argonne National Laboratory Transportation Research and Analysis Computing Center (TRACC), the Chicago Metropolitan Agency for Planning (CMAP), and the City of Chicago, has developed a Chicago TRANSIMS Model covering roadways, transit, and pedestrians over the entire 10,000 square miles of the Chicago Metropolitan area. This model is used to assess traffic network impacts of emergency events, such as last year's blizzard that shut down Lake Shore Drive. They are also now using this model to assist with evacuation planning. Additionally, the Chicago model

The Illinois Institute of Technology and its precursor colleges were founded to provide Chicagoans from all backgrounds with a technical education so they could become tomorrow's leaders.

has been incorporated into capital investment planning strategies by the Illinois State Toll Highway Authority to best use its \$12 to \$17 billion capital investments.

The Illinois Institute of Technology and its precursor colleges were founded to provide Chicagoans from all backgrounds with a technical education so they could become tomorrow's leaders. For over a century, IIT has performed this function well. With their current Transportation research and its products, such as the Chicago TRANSIMS Model, its legacy, it seems, will be secure for years to come. **ASCE**

John Gregory Green, a Senior Rail Civil Engineer with Halcrow inc. in Chicago, is a Director of the ASCE Illinois Section. This article provided by the Transportation & Development Institute.

ASCE National Sustainability Initiatives

(continued from page 3)

Engineering Environmental Quality Assessment and Award (CEEQUAL) in the United Kingdom.

The *Envision*TM rating system was formally launched in the summer of 2011 for public comment. Based on the public comments, the program has recently underwent significant change. The latest version of *Envision*TM raises the bar on sustainability performance by recognizing efforts that replenish and restore natural resources and ecosystems, and evaluating infrastructure throughout its full life, with ratings for design and planning, construction, operations, and decommissioning. It will also address the design and planning phase with subsequent phase ratings to follow.

Within each phase, sustainability objectives are organized in three tiers; categories, subcategories, and credits. By meeting objectives within a credit, projects earn points toward their rating score. The achievement of points within the credit is scaled in five levels to ensure all efforts to achieve sustainability are rewarded proportionally.

Educational programs will be offered in conjunction with the new rating system's release, to not only train individuals to use *Envision*TM but to incorporate systems-level thinking into their approach to sustainability, considering the broader, often overlooked, impacts of a project.

In addition to the release of *Envision*TM, the Institute for Sustainable Infrastructure,

in collaboration with the Harvard Zofnass Program, plans to release two companion tools this year: a pre-planning checklist for assessing project sustainability in increasing awareness of issues, and a comprehensive guidance document and score calculator that allows users to analyze and rate a project's levels of achievement for sustainability objectives. Both tools are under development and important steps in realizing the goal for a holistic system. **ASCE**

Darren Olson, a Water Resources Section Head at Christopher B. Burke Engineering, Ltd., is the current Past-President of the Section and a member of the Sustainability Committee. This article was provided by the Sustainability Committee.

Section Activities

F E B R U A R Y

T&DI

Board Meeting

Date: Tuesday, February 14

Time: 5:30pm

Place: Primera Engineers
100 S. Wacker Dr., Suite 700
Chicago, IL 60606

RSVP: By Monday, February 13th to
host Andy Walton at
awalton@primerachicago.com
(Any ASCE member is welcome
to attend.)

EWRI Chapter

Monthly Meeting

Date: Tuesday, February 14

Time: 5:30 pm

Place: MWH
175 W Jackson Blvd, 19th Floor
Chicago, IL 60604
(Use elevator banks on the
Van Buren side of the building.)

RSVP: Arun Herr at
Arun.K.Heer@usace.army.mil

SEI-IL

February Dinner Meeting

Date: Wednesday, February 15

Time: 5:30pm Cocktails
6:00pm Dinner and Presentation

Topic: Evaluation and Life Extension
Recommendations for Pre-Stressed,
Post-Tensioned, Reinforced
Concrete and Steel Structures

Speaker: David Keaffaber, PE
Business Development Director
SCS, Inc.

Place: Pazzo's
311 S. Wacker Drive
Chicago, IL 60606

PDH: 1 Hour

Cost: \$45 (\$30 government/education;
\$20 fulltime students) with RSVP
on/before February 10, 2012
\$50 without/late RSVP

RSVP: By February 10th to
asce.il.struct@gmail.com

Questions: Contact Brett Sauter
at (773) 775-4009

T&DI

Luncheon Program

Date: Thursday, February 16

Time: 11:30 am to 12:00 pm – Social
12:00 to 12:40 pm – Lunch
12:40 to 1:30 pm – Speaker

Topic: Revive Wacker Drive
Part 2 – Project Highlights

Speaker: Dan Burke
CDOT Chief Bridge Engineer

Place: Maggiano's
516 N. Clark St.
Chicago, IL 60654
(use the Grand Ave. entrance)

PDHs: 1 Hour

Cost: \$45 ASCE
\$50 Non-members
\$35 Government
\$15 Students

RSVP: By Monday, February 13th at
<https://www.123signup.com/event?id=chvpz>

Questions: Andy Walton at
awalton@primerachicago.com

Student Outreach Committee

CAFamily Studio Sunday – Engineering Day

Volunteer Needed!!

Date: Sunday, February 19

Time: 11:00am to 3:00pm

The Chicago Architecture Foundation is hosting a special Engineering Day event geared towards children ages 3-12. Children and adults will be able to experience hands on activities and attend an informational presentation related to architecture and structural topics.

Needed Shifts:

11:00-1:00 pm
2:00-3:00 pm

(assistance with set-up and clean-up would also be appreciated). Volunteers will be interacting with the children to assist them with creating gum drop domes and one other activity. Refreshments will be available for volunteers.

Place: Chicago Architecture Foundation
224 S. Michigan Ave
in the Santa Fe Building

Contacts: Stephanie Nurre at
snurre@cbbel.com

Younger Member Group

PE Exam Review Course Registration Deadline

Date: Classes will be held on Tuesdays
and Thursdays

Time: 6:00 pm to 9:00 pm

ASCE YMG (Younger Member Group) & AAAEA (The Arab American Association of Engineers and Architects) are once again offering their PE Exam Review Course for the April 13th, 2012 IL Professional Engineer Exam.

Our revamped PE Review Course features live instruction as well as focused problem-solving sessions, to best prepare you for this important step in your career.

Our course has received very favorable reviews from past attendees and is the best value available for PE Exam preparation.

Place: Parsons Brinckerhoff Office
230 W. Monroe Street, Suite 900
Chicago, IL

Cost: \$400 (This cost does not include
any books)

RSVP: Email your name and contact info
(address, email, and telephone
number) to Hussam Alkhatib at
alkhatib@pbworld.com before
February 17th.

Contact: Hussam Alkhatib
YMG PE Exam Review Director,
(c) (708) 845-6363

(continued on page 8)



"Having an accurate, 'easy to use' way to record our billable hours has resulted in a net gain of over \$30,000 in our first year of use alone."

- Al Truss, President, Fountainhead Group Consulting Ltd
BillQuick user

TIME TRACKING | PROJECT MANAGEMENT | BILLING

You Build It ... We Bill It

- Faster Billing
- Time & Expense Tracking
- Project Management
- Remote Access
- Budget Tracking
- Powerful & Professional Invoices

Customizable
Invoice Templates

Call Today for your **FREE 30-Day Trial**

Page 1 of 1

Hendricks Consulting LLC
2081 Airport Drive, Suite 380
Los Angeles, CA 90085
Tel: (555) 555-1212 Fax: (555) 555-1212
admin@hendricks_consulting.com
www.hendricks_consulting.com

Mr. Florida Mania
Factor Foundation
20 Riverbend Street
Fresno, CA 95830

Project ID: 11-LB4
Project Name: Long Beach Harbor
Manager: JRC

Invoice Date: Feb 1, 2011
Invoice Month: 1120
Billing From: Jan 01, 2011
Billing To: Jan 31, 2011

Invoice

Phase	Phase Description	Contract Amount	% Complete	Price Billings	This Invoice
11-LB4B10D	Schematic Design	\$0,000.00	50%	\$0.00	\$4,000.00
11-LB4B10D	Design Development	\$4,000.00	50%	\$0.00	\$0,200.00
11-LB4B10D	Construction Documents	\$16,000.00	10%	\$0.00	\$0,400.00
11-LB4B10A	Contractor Administration	\$12,000.00	2%	\$0.00	\$600.00
TOTAL:		\$32,000.00		\$0.00	\$5,200.00

Consultant Fees:

Description	Date	Units	Cost	Amount
Structural Engineer Progress #1	1/1/2011	1.00	\$0,000.00	\$0,000.00
TOTAL:				\$0,000.00

Reimbursable Expenses

Description	Date	Units	Cost	Amount
Fuel	1/1/2011	1.00	\$29.00	\$29.00
TOTAL:				\$29.00

Total Amount Due: **\$5,429.00**
(This invoice is a summary report)

Account Summary

Billed To Date	Paid To Date	Balance Due
01/01/2011	01/31/2011	\$5,429.00

Call us today for a **FREE Trial Copy**

www.BQE.com/ASCE | (888) 245-5669

Integrates with



Microsoft
Outlook®

Section Activities

(continued from page 6)

Younger Member Group

Dinner Meeting

Date: Wednesday, February 22
Time: 5:30pm Dinner,
6:00pm Speaker
Topic: Bus Rapid Transit (BRT) in Chicago
Speaker: Aimee Lee
Division Manager of Strategic
Planning & Policy at the RTA
Place: HNTB Corporation
111 N Canal St, Suite 900
Chicago, IL 60606
PDHs: 1 Hour
Cost: Professionals - \$20 each
Students - FREE!!
RSVP: by Monday, February 20th to
Brenda Christopher at
bchristopher@hntb.com

Illinois Section's 2012 Legislative Day

(SAVE THE DATE)

Date: Tuesday, February 28, 2012
Place: Springfield, IL
Questions:
Darren Olson at dolson@cbbel.com

Upcoming Activities

T&DI

Board Meeting

Date: Tuesday, March 13
Time: 5:30pm
Place: Christopher B. Burke Engineering
9575 W. Higgins Rd., St 600
Rosemont
RSVP: By Monday, March 12th to host
Matt Huffman at
mhuffman@cbbel.com
(Any ASCE member is welcome
to attend.)

SEI-IL

*Student and Young Professionals Program for
Structures 2012 Congress*

Date: Thursday to Saturday, March 29-31

The ASCE/SEI Structures Congress is your annual opportunity to broaden your technical knowledge, sharpen your business skills, deepen your understanding of cutting-edge research, and network with your peers and colleagues.

The 2012 program will include 11 concurrent technical tracks that focus on the theme: *"Forging Connections in the Windy City."* The sessions will demonstrate processes and present projects that are redefining structural engineering in the areas of bridge and transportation structures, buildings, and advances in research. You will exchange ideas with your peers and learn how other companies have adapted to changes in today's global economy.

The Congress presents a tremendous opportunity to earn PDH's and gain new knowledge so that you and your business will thrive.

For more information, please visit the web pages below both for students and professionals.

For Students: <http://content.asce.org/conferences/structures2012/student.html>

For Young Professionals:
<http://content.asce.org/conferences/structures2012/younger-member.html>

President Elect and Student Scholarship Spring Dinner

(SAVE THE DATE)

Date: Wednesday, April 11, 2012
Place: Maggiano's
111 W. Grand Ave.
Chicago, IL

Other Organizations' Activities

Chicago Architecture Foundation

CAFamily Studio Sunday – Engineering Day

Date: Sunday, February 19
Time: 11:00 am to 3:00 pm
The Chicago Architecture Foundation
is hosting a special Engineering Day

event geared towards children ages 3-12. Children and adults will be able to experience hands on activities and attend an informational presentation related to architecture and structural topics.

Volunteer shifts available:

11:00-2:00 pm
2:00-4:00 pm
(assistance with set-up and clean-up would also be appreciated).

Volunteers will be interacting with the children to assist them with creating gum drop domes and one other activity. Refreshments will be available for volunteers.

Place: Chicago Architecture Foundation
224 S. Michigan Ave in the
Santa Fe Building

Contacts: Stephanie Nurre at snurre@cbbel.com

UIC Spring 2012 Engineering Career Fair

Date: Wednesday, February 22
Time: 12:00 pm to 4:00 pm
Details: The Engineering Career Fair is an effective resource to match potential employers with engineering students, not only for internships and co-op positions, but also for full-time careers. The UIC College of Engineering is recognized for its academic excellence with undergraduate and graduate programs in six academic departments.
Place: Illinois Room
Student Center East
750 S. Halsted Street
Chicago, IL 60607

Registration:

Early-bird discounted registration is now open, and will end at the close of business, on Tuesday, December 15, 2011. The employer registration link is:
<http://www.ecc.uic.edu/ECC/EmployerRegistration>

Questions: For more information, please contact the Engineering Career Center at engrjobs@uic.edu.

(continued on page 9)

Illinois Section News & Secretary Report

J A N U A R Y 2 0 1 2

In an effort to inform Illinois Section members of the discussions at the monthly Board meetings, the Section Secretary contributes this monthly article to the newsletter. Any questions or comments on the Board activities are welcome by contacting Patrick Lach, at plach@heyassoc.com

■ Treasurer's Report

▲Treasurer MacKinnon presented the Treasurer's Monthly Report.

■ Group Reports

▲All Groups presented a written report outlining previous and current month's activities.

■ New Business

▲Newsletter Concerns: Advertisement revenue is lacking this last year. The Section will look at ways to stimulate potential revenue.

▲Structures Congress: SEI is sponsoring 3 students to attend and the Section will also sponsor up to 3 students from the local student chapters

▲Lobbying Update: The Spring Legislative day is tentatively scheduled for February 28, 2012.

▲2012 Outstanding Section Award: The Section will investigate compiling an application to submit to National ASCE.

■ Old Business

▲Future Cities: Volunteers are still needed for Future Cities.

▲Student Scholarship and President-Elect Spring Dinner: The dinner will be held on April 11, 2011 at Maggiano's in Chicago

▲Student Resume: The Section is hosting a student resume book for the three student chapters.

▲Report Card: The Section is presenting to AWWA in April.

The next board meeting is scheduled for Monday, February 6, 2012 at 5:30pm at MWH Americas, Inc., 175 West Jackson Blvd, 19th Floor.

By Patrick Lach
plach@heyassoc.com

Section Activities

(continued from page 8)

Structural Engineers Association of Illinois

Chicagoland Engineering Awards Benefits

Date: Friday, February 24

Time: 5:30 pm-Reception
6:30 pm-Dinner and Award Presentations

Place: University Club of Chicago
76 E. Monroe
Chicago

Additional Information:

www.chicagolandeweek.org

Contact: Tim Seeden, Executive Director
Western Society of Engineers
1111 Burlington Ave, Ste 108-G
Lisle, IL 60532 or 630-724-9770
or wse@wsechicago.org

ASCE Region 3 Activities

Pumping Systems Design for Civil Engineers

Hydraulics & Water Resources

Feb 9-10

Chicago, IL

Progressive Collapse Mitigation: Practical Analysis Methods and Proven Solutions

Structural

Feb 23-24

Minneapolis, MN

HEC-RAS Computer Workshop for Unsteady Flow Applications

Hydraulics & Water Resources

March 7-9

Chicago, IL

Introduction to Dam and Levee Safety, Evaluation and Rehabilitation

Hydraulics & Water Resources

March 29-30

Minneapolis, MN

Seismic Design and Performance of Building Structures

Structural

March 29-30

Chicago, IL