

NEWSLETTER

President's Message



I welcome you to another edition of the AAAEA Newsletter. We had tremendous positive feedback on the last edition, which I thank Mr. Ibrahim Shillo of the Publication Committee and all of those who contributed articles. This issue has more informative news and articles and I hope you will enjoy it and future issues. The Newsletter is just one of the many benefits of membership. Please make sure you are renewed for 2005. We are currently updating our membership records and only those who are current will receive the next Newsletter or any other mail.

As always, I remind you to **only** use the Chicago address and phone number (see the top of this page) for correspondence. An update on AAAEA News: The AAAEA continues to be an active part of the Illinois Engineering scene. We recently participated in the Illinois Society of Professional Engineers (ISPE) Annual Conference and the Illinois Engineering Council (IEC) Annual

Awards Banquet. See inside for articles on these two events.

Activities: The 3 summer family picnics were well attended and enjoyed by all, especially the kids. This year we had one each in the Southwest suburbs, West suburbs and Northwest suburbs. We hope all had the opportunity to enjoy these activities. Thanks to Activity Chairman Omar Alsharbini and his family for their work on all the picnics. The Family Bowling day will be held this coming January. The Semi-Annual Meeting will be held this year on December 8 in Oak Brook. It looks to be a very exciting event for the AAAEA. Mr. Amer Husaini of Motorola is scheduled to be our Guest Speaker. Look inside for more information on this Meeting, which will include a fine dinner, award presentations, and discussion of the AAAEA.

Education: EIT review classes are being scheduled to start in January in preparation for the April exam. A Technical Seminar is scheduled for November 19 (look inside for more details) and another is tentatively scheduled for December. A Field Trip is also being planned in the future. With September, and the new school year, brings back our Math Tutoring program for grade school and high school students. A great thanks to our Math tutoring volunteers for their commitment to the children of our community.

Career: A Career Workshop was conducted on September 29 by GM Sadat, our new Career Enhancement chairman. I would like to welcome "Jim" to the Board. Career Workshop will be scheduled every 2 months, but we are available at all times to help you with your career needs. Next Career Workshop is November 29.

Membership: We have 34 new members so far this year, 17 of which are engineering students. I'd like to thank Suha Saber and our other young engineers for their outreach to the colleges. Though new memberships have been growing, existing member renewals has been somewhat disappointing. I hope everyone who has not renewed for the current year does so promptly. We have improved the online membership form. (See inside for Mohammad Kleit's IT Committee report).

Finance: We continue to be financially stable. I would like to thank Hatem Elagha for his generous contribution to the Scholarship Fund. A reminder that all contributions are tax-deductible.

By-Laws: Please send us any suggested changes to the By-laws, if any. The current By-Laws are on the website.

Again, the AAAEA thanks all of you that have participated in our activities, and look forward to your participation in our upcoming activities. See the calendar of events. We have been focusing on improving our communications with members, with the emphasis on electronic communication. But we need your help; if you do not receive regular weekly emails from the AAAEA, please provide us with your current email address.

Abder R. Ghoulleh, PE



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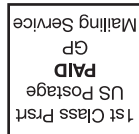
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Visit our Website

www.AAAEA.org



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AAEA CALENDAR OF EVENTS

October 2005

- Scholarship Interviews

November 2005

- Technical Seminar
- Career Workshop
- Newsletter

December 2005

- Semi-Annual Meeting
- Technical Seminar

January 2006

- EIT Review Classes
- Career Workshop
- Family Bowling Event

“Discuss your Career Goals and Improve your Resume”
Next Career Workshop is Tuesday, November 29, 7 PM
in Arlington Heights
To register: call 312-409-8560
or Email aaaea@aaaea.org

ENGINEERING HUMOR

To the optimist, the glass is half full.
To the pessimist, the glass is half empty.

To the Engineer, the glass is twice as
big as it needs to be.

UPCOMING EVENT

AAAEA Technical Conference

Date: Saturday, November 19, 2005
Time: 10:00 AM – 2:00 PM
Place: University of Illinois at Chicago
ERF, Room 1047
842 W. Taylor St.
Chicago, Illinois
Cost: Early Registration:

\$5 (Members) / \$15 (Non-members)

On-Site Registration:

\$15 (Members) / \$25 (Non-members)
Refreshments and lunch included.

Presentations:

"Emergency Bridge Repair"
Shaker Asfour, P.E., Illinois DOT

"Transportation Project Management
(Design and Construction)"
Dr. Soliman Khudeira, P.E., Chicago DOT

"Home Inspections"
Dr. Maher Abu-Mallouh, P.E.

To register: call 312-409-8560
or Email aaaea@aaaea.org

For more information visit the AAEA Website @
www.aaaea.org

EDITOR'S NOTE

I would like to thank all members who
contributed to the Newsletter.

We are always in need of articles for the
Newsletter, so we strongly encourage you to
send in material to us.

Thank you,
Ibrahim Shillo
Publication Committee
aaaea@aaaea.org

EIT Review Class Information

Classes will be held at:	UIC campus 842 W. Taylor, ERF first floor, Chicago, IL
Cost:	\$100 Members \$200 Non-members (does not include cost of books)
For more info:	Call: Dr. Maher Abu-Mallouh (773) 619-8897 or Email: aaaea@aaaea.org
To Register:	Email us your name and contact info (address, email, and telephone number) or call (312) 409-8560.

2006 Tentative Schedule:

DATE	6:00 pm - 9:00 pm	DATE	6:00 pm - 9:00 pm
January 12, 2006	Mathematics	February 23	Strength of Materials
January 19	Mathematics	March 2	Fluid Mechanics
January 26	Computer Science	March 9	Thermodynamics
February 6	Engineering Economics	March 16	Electrical Engineering
February 9	Statics	March 23	Chemistry
February 16	Dynamics	April 6	Mathematics

Business Profiles

PETRA ENGINEERING & CONTRACTING CORP. are Consultant Engineers and Builders. Petra Engineering is a fairly new firm in the Greater Chicago area that provides services in Civil Engineering & Structural Engineering. They can provide Project/Construction Management in the Government and Private (Residential and Commercial) sector; Design-Build ability for the Private sector; and Builders/Developers for the Private sector only. Secondary services that can be provided are Architects and Surveying.

Issa Dababneh, PE, leads this young and enthusiastic company. Issa has a Masters Degree in Civil Engineering and has been an AAEA member since 2003.

708-645-0141 / 708-717-1001
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HOSTITWISE.COM is a provider of Web Hosting and Web Design products and services for small businesses at competitive prices. Dr. Omar Aldawud and Maher Salem to leverage on their extensive web marketing, design and hosting experience funded Hostitwise.com.

Hostitwise.com offers complete web solutions from domain name registration to marketing tools to expand a company's presence on the web and provide its customers with electronic services when they need it. They provide web design and marketing expertise to their clients. They will research the best approach to economically and efficiently bring your vision to reality.

New member Omar Aldawud has a PhD in computer science. He works at Lucent Technologies as a software architect in the IMS Application Engineering & System Design group. Omar has written many papers and conducted workshops in the field of computer science. He is part of the Concurrent Programming Research Group and of the Aspect Oriented Software Development at the Illinois Institute of Technology. He is also an instructor at IIT.

www.hostitwise.com



The Arab American Engineers & Architects Association of Michigan (AAEA) has officially formed. They can be contacted at info@aaeausa.com. A website www.aaeausa.com is currently under construction. We will provide links to these from the AAAEA website.

They had a large turnout for their August 4 Meeting. Their Board members are Sermed Saif, PE (President); Mustapha Hamood, PE (Secretary); Dr. Mahmoud El-Gamal, PE (Treasurer); Ghassan Abdelnour, AIA; Hala Baroudi, PE; and Nafa Khalaf.

The following is part of an email sent from the Michigan AAAEA (edited for space) after a meeting between them and our own members, with additional comments from our Bilal Almasri:

On Saturday, September 24, 2005, Mustapha Hamood, Nafa Khalaf and Sermed Saif met with Bilal Almasri and Talal Almasri from the AAAEA (Chicago). Bilal was the first AAAEA President and currently a Trustee, while Talal is a former Executive Board member.

We have been in contact with the Chicago Association since day one and as they heard that we are serious and trying to form, they offered all the help and support for us. When Bilal and Talal had an opportunity to a Detroit visit, they contacted Jomaa Ben-Hassine to arrange a meeting with us. Jomaa (who was out of Michigan at that time) called us immediately notifying us of the visit. The Chicago Association has been established for 9 years.

During our meeting that was held in Dearborn, we discussed several topics and brain-stormed on many important issues. The following is an outline of the discussion:

Challenges:

- 1. Professional organization, not religious, not political.*
- 2. Maintain and involve membership.*

Focus:

- 1. Education/Professional: (EIT and PE courses, Technical Seminars).*
- 2. Social: (picnics in summer, bowling in winter, annual celebration).*
- 3. Community Involvement: (Tutor in local Arabic schools, Help in ACT preparation, Judge science fairs).*
- 4. Networking: (Internally and Externally with public and private sectors, Assist in finding jobs for engineers, Website announcements, Quarterly Newsletters).*

Chicago General:

- 1. Members are: Student, Associate (not engineers), Regular, and Honorary. \$10 for Students, \$50 for Associates and Regular members.*
- 2. Also contacted Texas, Florida, Milwaukee and San Francisco. Goal is to Develop Chapters and have a National Convention.*
- 3. Have caucus with Arab American Medical and Bar Associations.*
- 4. Two Boards: Board of Directors and Board of Trustees.*

Target:

- 1. A national association is a great goal and a big possibility.*
- 2. Maybe 4 main chapters in the US (Chicago, Michigan, California, and Florida) and smaller ones in other states. A Central US Headquarters Office (DC maybe).*
- 3. National conventions.*
- 4. National Network.*

We are very grateful to have an opportunity to meet with Chicago and will always be in contact. They are very excited about Detroit and believe that we have a great potential and huge advantage. We will continue to work together to make this happen and help our engineers wherever they are.

If you have any questions, please feel free to contact me. Thank you all for the support.

Sermed K. Saif, PE

By Dr. Soliman Khudeira, PE

This is the second article in a series of articles to follow that discuss various topics related to roadway planning and design which include: roadway classification, needs assessment, project scope and timeline, stakeholders participation, project phases, funding sources, projects' environmental process, value engineering, right-of-way acquisition, cost methodologies, and maintenance of roadway elements. Each topic will be discussed in limited detail and is illustrated by citing a typical roadway project. Part I of this series discussed roadway classifications. Part II of this series discusses Need Analysis.

Needs Analysis

One of the most important steps in identifying what type of transportation projects should be developed is making an assessment of the transportation needs. The assessment helps identify what action is being pursued, identifies problems that already exist or which will exist if a project is not implemented, provides the justification for the action, and helps to define what constitutes practicable alternatives. Many different factors can go into shaping a statement of purpose and need for a project. It should clearly demonstrate that a "need" exists and should define the "need" in terms understandable to the general public. The discussion should clearly describe the problems which the proposed action is to correct. Various elements of purpose and need should be explored for any given project, including such concerns as mobility, safety, or economic development.

The importance of purpose and need

The purpose and need section establishes why the agency is proposing to spend large amounts of taxpayers' money while causing significant impacts to the public. A clear, well-justified purpose and need section explains to the public and decision-makers that the expenditure of funds is necessary and worthwhile and that the priority the project is being given relative to other needed highway projects is warranted. In addition, although significant impacts are expected to be caused by the project, the purpose and needs section should justify and explain why the impacts are acceptable based on the project's importance.

1. Consideration of alternatives

In urbanized areas, the transportation programs should be consistent with the planned development of an area. Planning, which includes transportation, should establish the basic purpose and need for specific projects and consequences of the no-build alternative. Scoping meetings early in the process are an excellent means to reach agreement with the participants on the basic purpose and need for the project.

After the basic purpose and needs for the project are established, a number of options can theoretically be drawn to connect two points. If the project's purpose and needs are so vague as to only stipulate that a transportation improvement between two points is needed, then reasonable alternatives would cover a wide range and must be evaluated. As the project's purpose and needs are refined, a number of alternatives will drop out, thereby permitting a more detailed analysis of those alternatives which truly address the problem to be solved. If an alternative does not satisfy the purpose and needs for the project, as a rule, it should not be included in the analysis as an apparent alternative. There are times when an alternative that is not reasonable is included based on the request of another agency or due to public expectation. In such cases, it should be clearly explained in details why the alternative is not reasonable and why it not be selected.

2. Basic ingredients of purpose and need

The purpose and need should be as comprehensive and specific as possible. For example, rather than simply stating that additional capacity is needed between two points, information on the adequacy of current facilities to handle the existing and projected traffic should be discussed. Other information on factors such as safety, system linkage, social demands, etc., that the proposed project will attempt to address, should be described. This will assist in refining the alternatives which should be analyzed.

All of the elements which are relevant should provide specific and detailed data to compare the present, future no-build and future build conditions. Data should be presented on such factors as reduction in vehicle hours of travel, improvements in travel speeds on the system, reduction in traffic accidents, injuries and fatalities, savings in cost to the traveling public, enhanced economic development potential, improved access to public facilities, etc. It is not sufficient to state that the project is needed to provide increased capacity and improve safety. Supporting data must be provided.

3. Using purpose and need in decision-making

The decision-making process should first consider the alternatives which meet the purpose and need for the project. At times, it is possible that no alternative meets all aspects of the project's purpose and need. In such a case, it must be determined if the alternatives are acceptable and worthwhile pursuing in light of the cost, environmental impact and

Continue on next page.



less than optimal transportation solution. To properly assess this, it is important to determine the elements of the purpose and need which are critical to the project, as opposed to those which may be desirable or simply support it. The critical elements are those which if not met, at least to some minimal level, would lead to a "no-build" decision. In the vast majority of cases, however, at least one alternative will fully meet the purpose and need at an acceptable cost and level of impact.

Elements of Purpose and Need

Without a well-defined purpose and need, it will be difficult to determine which alternatives are reasonable and practicable. Exhibit 3 outlines a typical need analysis for a typical roadway project, which includes: project location, existing and proposed conditions, project's history, deficiencies, project's purpose, etc.

ELEMENTS OF NEED ANALYSIS FOR A TYPICAL ROADWAY PROJECT

TOPIC	ITEMS TO BE INCLUDED
Project Status	<ul style="list-style-type: none"> Briefly describe the project history including actions taken to date, other agencies and governmental units involved, action pending, schedules, etc.
Project Location and rout classification	<ul style="list-style-type: none"> Functional Classification and local road name(s) Regional Location: identify the project location with respect to other major routes, municipalities, and geographical markers. Limits, county, municipality, maintenance jurisdiction, and ownership of the roadway Separate classifications (e.g. truck route, NHS, SRA)
Existing Conditions	<ul style="list-style-type: none"> Land use along the route and in the project vicinity <ul style="list-style-type: none"> Residential, commercial, industrial Historical sites Schools, parks, forest preserve, etc. Existing Cross Section <ul style="list-style-type: none"> Number of lanes, parking, shoulders and/or curb and gutters, sidewalk, median type, and right-of-way, pavement composition Existing drainage: description of open/close system and record of flooding
Project History	<ul style="list-style-type: none"> Identify why the project was initiated and explain the need for the project Local interest in the project Relationship to other projects: (past, current, future)
Deficiencies	<ul style="list-style-type: none"> Safety concerns: Include brief accident summary (e.g., number of accidents, predominant accidents and causes). Is the proposed project necessary to correct an existing or potential safety hazard? Is the existing accident rate excessively high and why. How will the proposed project improve it. Roadway Deficiencies - Is the proposed project necessary to correct existing roadway deficiencies and how will the proposed project improve it. Deficiencies include: <ul style="list-style-type: none"> substandard geometrics load limits on structures and other structural deficiencies Inadequate cross-section or high maintenance costs). Operational concerns/capacity Pavement deficiencies Existing geometry and profile deficiencies
Legislation	Is there a Federal, State, or local governmental mandate for the action
Social Demands or Economic Development	New employment, schools, land use plans, recreation, etc. What projected economic development/land use changes indicate the need to improve or add to the highway capacity
System Linkage	Is the proposed project a "connecting link?" How does it fit in the transportation system?
Capacity	Is the capacity of the present facility inadequate for the present traffic and projected traffic and what capacity is needed? What is the level(s) of service for existing and proposed facilities
Transportation Demand	Including relationship to any statewide plan or adopted urban transportation plan together with an explanation of the project's traffic forecasts
Modal Interrelationships	How will the proposed facility interface with and serve to complement airports, rail and port facilities, mass transit services, etc.
Project Purpose	general statement outlining the project purpose

Exhibit 3: Components of Needs Analysis for a Roadway Project

Welcome New AAAEA Members

Bilal Khalil
Ayham Al-Banna
Sana Ihmoud
Abdelilah Fakkar
Rajai Alroushan
Layla Amaireh
Husam Abu-Shukhaidem

Omar Mishal
Smail Bouabdallah
Mohammad Alhasan
Mousa Taha
Emad Mahfzah
Omar Aldawud
Munir Nazzal

Dear Members,

I would like to welcome our new members to AAAEA. I would also like to thank existing and renewing members for their continued support. Membership gives you the chance to play a central role in building the AAAEA organization. AAAEA members enjoy a variety of benefits; your membership in AAAEA has more value than ever before. Our mission at AAAEA is to improve and enhance the lives of engineers and the engineering profession. You are now among a select group of professionals who have joined together to promote the engineering profession while strengthening your individual professional skills.

Thank You,
 Suha M Saber
 Membership Committee Chairperson

ANNOUNCEMENTS AND NEWS

Condolences to Mohammad Alasfar and family on the loss of his father.

Condolences to Hasan and Naser Al-Gholeh on the loss of their grandfather.

Congratulations to Ehab and Nour Elqaq on their new baby girl Jenne.

Congratulations to Dr. Ahmad and Lana Hammad on their new baby born girl Naima.

Congratulations to Raghda Najar on passing the EIT exam.

Congratulations to Manar Nashif for his new position with the Illinois Tollway Authority.

Congratulations to Sameir Ali on his new position with the Florida Department of Transportation.

Congratulations to Khaled Shouman on his new position with the Minnesota Department of Transportation.

Good Luck to Hashim Shabib on his new assignment overseas.

Saturday, November 19 at 6 PM, The National Arab American Medical Association - Illinois Chapter's "Annual Fall Dinner Gala" at the Chicago Marriot Southwest in Burr Ridge, Illinois. call (815) 469-8311 for further information.

If you have an announcement on any member, please email it to us at aaaea@aaaea.org



IT Committee Report

By Mohammad Kleit

New AAAEA members can now submit their membership application using a new on-line form that has just been added to our AAAEA web site. Existing members of the organization may also use the on-line application to renew their membership and/or update their address and membership information.

The new on-line form will facilitate and expedite the application process for both the applicant and our application committee by transmitting the information accurately and in a timely manner. We urge all our members to use the application to update their membership information records especially current email address and telephone number.

Members and prospective members may access the application by visiting the AAAEA web site and clicking the "Membership Application" link of the left side bar or by directly entering the following in the browser's address bar: <http://aaaea.org/MembershipApplication.htm>

The 2005 ISPE Conference

By Suha Saber

I was given the opportunity by the AAAEA to attend the 2005 Illinois Society of Professional Engineers (ISPE) Conference at the Wyndham Conference Center in Lisle. The ISPE conference provided an opportunity to earn Professional Development Hours through educational sessions. There were many sessions that I attended, one of which was a session on Successful Women in Engineering which was sponsored by the University of Illinois at Urbana-Champaign. The panelists included Denise Casalino, PE, Commissioner of Planning and Development, City of Chicago; Kathryn Gray, PE, NSPE President & President of Graytech Software, Inc.; Susan Fullerton, PE, Vice President of Parsons; Mary Coombe Bloxdorf, PE, President of Coombe Bloxdorf Engineers and Land Surveyors. The panelists gave insight on the tricks of the trade. They also gave engineering tips from a female engineer's perspective.

I also attended the Radio Frequency Identification (RFID) Technology Primer, which was sponsored by Zebra Technologies Corporation and presented by High-tech Knowledge Incorporated. The session provided a comprehensive overview of radio frequency identification technology, giving the attendees of this session a better understanding of the RFID technology. Another session that I attended was Contract Management, Risk Allocation by Design, which was sponsored by Daily & Associates Engineers and presented by Holmes Murphy and Associates. The session helped in understanding frequent contract management issues. Also, it gave the tools and techniques to support better management of agreements.



AAAEA in the Drivers Seat at the Illinois Engineering Council

Illinois Engineering Council's success in 2005 is in no small part due to the contribution of the AAAEA. As one of the Council's newest societies, AAAEA members have shown the same enthusiasm towards the IEC that helped build our association.

On September 16th, the IEC held its annual Outstanding Engineering Awards Banquet. The banquet, which was opened with an address by AAAEA member and IEC President Hanie Miri, featured MWRDGC President Terrence O'Brien and General Superintendent Jack Farnan as the keynote speakers. AAAEA supported the banquet by sponsoring a table of 8 members that included Abder R. Ghoulé who was recognized as member society President. AAAEA Trustee Bilal Masri also attended the banquet and played a key role in inviting the IEC speakers.

Hanie Miri served as the IEC President for the 2004-2005 year after serving as Secretary and Vice President in previous years. Along with Hanie, the IEC executive committee included Dr. Soliman Khudeira as Secretary, giving the AAAEA two executive board members, the most of any member society.

Dr. Khudeira was recently elected as IEC Vice-President for the 2005-2006 year. IEC delegates from the AAAEA have included Dr. Ahmad Hammad, Dr. Gaffar Kazkaz, Jamal Grainawi and Abder R. Ghoulé. We are proud of our members work with the IEC and look forward to several more years of volunteerism.



WHAT IS A HOME INSPECTION?

By Dr. Maher Abu-Mallouh, PE

A home inspection is a thorough, in-depth visual examination of the structure and operating components of a home.

BUYER

If you are planning to buy a house, you should know that no house is perfect, even a brand-new one. This doesn't mean that you won't find the house of your dreams. It does mean that when you find a house that's just what you want, you should go one step further and find out its problems or potential problems, if any, and get your home inspected by a certified home inspector. Problems can be the result of deficiencies in construction, deterioration due to aging, or safety and fire hazards. Very often the problems are quite minor and can be corrected at little or no cost. However, sometimes there are major problems that are quite costly to correct.

Usually when people decide to buy a home, the decision is based on a superficial inspection of the house. They tend to make an emotional decision which might be correct; however, it should be based on an understanding of the true condition of the house and not on its cosmetic condition.

A trained inspector will point out areas of concern during the inspection, as well as educate you, the buyer, as to proper care and maintenance procedures. This information will assist you in making an unemotional, intelligent, and informed purchase decision.

A professional home inspection will also provide you with a feeling of security and peace of mind regarding one of life's largest investments. **A & H Engineering** highly recommends that buyers are present at the inspection. If it is not possible to attend the inspection, they will set up a time to do a walk-through of the home at a later date, or follow up the report with a telephone call to review the findings with you.

SELLER

Save time, money and reduce your liability by having a pre-sale home inspection. The inspection will alert you to any possible problems and allow you time to have them repaired before putting the home on the market. This can speed up the process of the sale of the home by showing the prospective buyer that the home is in good condition and ready for sale.

Illinois PE Professional Development Guidelines

Contributed by Dr. Ahmad Hammad, SE, PE

As you know, the State of Illinois implemented a new Professional Development (continuing education) requirement for all Illinois PE's in December, 2003. Beginning with the November 30, 2005 renewal, all PE's must earn 30 professional development hours within the current 2-year renewal period, with one Professional Development Hour equaling 50 minutes of presentation/classroom time. The hours must be earned during the renewal period (there are no "carry over" hours from one renewal period to the next).

To gain PDHs, in addition to seminars, presentations and classes, you may consider things like: Attendance at professional society meetings that feature a technical presentation (50 minutes min); Serving on a board or committee of a technical or professional organization; Presenting a paper; or Internal training classes that award CEU's. While certificates of completion are not mandatory, it is your obligation to document your participation in any of the qualifying activities.

The changes on the 2005 AISC specifications are made to develop the practice-oriented specification for structural steel buildings that provide:

- Life safety
- Economical building system
- Predictable behavior and response
- Efficient use

Updates and revisions have been made in the various chapters throughout the standard, including an expanded scope in Chapter A which affects the applicability of the entire document by stating that this specification sets forth criteria for the "design of structural steel buildings and other structures" where other structures defined as "those structures" designed fabricated, and erected in a manner similar to buildings, with vertical and lateral load-resisting elements. The new updates also include analysis provisions allowing the designer more flexibility, composite design based on high strength materials and recent research, connection design, including expanded HSS connection configurations, new appendix on design for fire conditions, and in addition to the commentary in the back of the specification, User Notes are interspersed throughout the text.

The new unified format of the 2005 specification is the most visible sign of change. This allows the incorporation of both ASD and LRFD methods into one specification. This direction is consistent with the ASCE 7, which provides load combinations for both "Strength Design" referred to as LRFD in the AISC Specification, and Allowable Stress Design. ASCE 7 is directly referenced in the 2005 ASIC Specification.

For LRFD, design will performed in accordance with the following relation:

Where

- R_u = required strength based on LRFD Load Combinations
- R_n = nominal strength
- ϕ = resistance factor
- ϕR_n = design strength

For ASD, design will performed in accordance with the following relation:

Where

- R_a = required strength based on LRFD Load Combinations
- R_n = nominal strength
- W = safety factor
- ϕR_n = allowable strength

These formulations allow a single equation for each limit state that may then be used in either LRFD or ASD. The user can choose to use a strength-based or stress-based approach when using this specification.

The overall message delivered by this format is that steel behaves like steel and it does not know what method is being used as it is designed. This specially apparent in the analysis and stability design of steel.



The 2005 AISC Specification for Structural Steel Buildings

By Dr. Mustafa Mahamid

Historic overview of AISC Specifications

In the late 1800's and early 1900's, there was no standardized specification. AISC was found in 1923 in response to a need for standardization in the steel industry. The design provisions and manuals at that time were written by city building officials and steel producers. This resulted in having a number of solutions to the same problem; for example in 1911 there were six different formulas in existence across the country (Bethlehem Steel, 1911). Therefore, AISC was founded in 1923 by the steel fabricating industry and produced its first AISC manual based on Allowable Stress Design (ASD) methodology, which gives capacities in allowable stresses with the factor of safety incorporated. This document was nine pages and has grown to 100 pages undergoing numerous changes and revisions based on experience and research over the years.

Over the years AISC published eight edition of the ASD manual and introduced the first load and resistance factor design (LRFD) specification in 1986. This design method is consistent with what had been used for structural steel design world wide for some time, as well as for the design of other material such as cold-formed steel and concrete. The procedure consists of calculating a nominal strength and multiplying that value times a resistance factor to determine member capacities. This is compared to the factored applied loads determined from "strength" load combinations given in ASCE 7, Minimum Design Loads for Buildings and Other Structures (ASCE, 2002). AISC focused on the development of the LRFD specification in the 1990's and published two revisions in 1993 and 1999.

New Direction of AISC Specifications

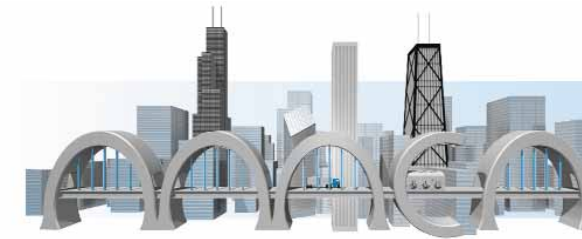
The motivation for having a unified format and merging the ASD and LRFD specifications in one document is because the LRFD specification did not gain popularity among steel designers. This is because of having two design philosophies in two different documents. The steel designers mostly preferred to stay with what they have used to, which is the ASD specifications.

The American Institute of Steel Construction (AISC) has taken new direction with the 2005 specifications for structural steel buildings. The 2005 specification merges the Allowable Stress Design and the Load and Resistance Factor Design methods into one document, replacing the 1989 Specification for Structural Steel Buildings-Allowable Stress Design and Plastic Design and the 1999 Load and Resistance Factor Design specification for Structural Steel Buildings. The 2005 AISC specification also replaces the two special member design specifications, the 2000 Load and Resistance Factor Design specification for Single-Angle members and the 2000 Load and Resistance Factor Design specification for Steel Hollow Structural Sections; meaning that the single-angle provisions and HSS provisions are incorporated into the new 2005 AISC specifications.

PICNIC – September 18, 2005



Highlights of Last Year's Semi-Annual Meeting



Arab American Association of Engineers & Architects
P.O. BOX 1536, Chicago, IL 60690-1536
Voice Mail: (312) 409-8560 Email: aaaaa@aaaaa.org
www.aaaaa.org



IDOT Sec. Timothy Martin and our IDOT Engineers



Education Chairman: Dr. MaherAbu-Mallouh



The AAAEA Volunteer Math Tutors



Issam Rayyan, Dr. Soliman Khudiera, Abder R. Ghouleh



AAAEA Service Award to Dr. Soliman Khudiera (center)



Keynote Speaker: IDOT Secretary Timothy Martin

AAAEA 2005 Semi Annual Meeting

Thursday, December 8, 2005

5:30 p.m. Reception
6:00 p.m. Dinner

Drury Lane Oak Brook
100 Drury Lane
Oakbrook Terrace, IL 60181
(630) 530-8300

Keynote Speaker:

Mr. Amer Husaini, MOTOROLA
VP of Global 3G-GSM Portfolio & Business Operations
(3rd generation-Global System for Mobile)

Cost:

\$30 Members / \$40 Non-Members

Reservations:

Call: AAAEA @ (312) 409-8560
or Email: aaaaa@aaaaa.org
or Mail: P.O. Box 1536
Chicago, IL 60690-1536

No Later than Friday, December 1, 2005
(Tickets will not be available at the door)

Directions:

WHEN APPROACHING FROM THE NORTH OR THE SOUTH ON ROUTE 83 (KINGERY): Exit at Roosevelt (Rt. 38)/Butterfield Road. Follow the sign to Drury Lane.

WHEN APPROACHING FROM THE EAST OR WEST ON ROOSEVELT ROAD (Rt. 38): Exit Rt. 83 (Kingery Hwy) south to Roosevelt Rd East and follow sign to Drury Lane.

WHEN APPROACHING FROM DOWNTOWN CHICAGO: Take the Eisenhower Exp. (I-290) West to I-88 West, Exist at Cermak, Proceed straight through the stop light, Continue on Spring Rd. to Drury Ln., Right onto Drury Ln.

WHEN APPROACHING FROM THE WEST ON I-88: Exit at Midwest Road, turn right, proceed North to Butterfield Road (Rt. 56), Turn right onto Butterfield Road, Exit Roosevelt Road East/Drury Lane.

WHEN APPROACHING FROM I-294 (TRI-STATE): Exit I-88 West, Exit at Cermak, Proceed straight through the stop light, Continue on Spring Rd. to Drury Ln., Right onto Drury Ln.

