



## Arab American Association of Engineers & Architects

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# AAAAEA NEWSLETTER

**Volume 9, Issue 2**  
**March 2007**

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## President's Message



*Jamal Grainawi, SE, PE*

Engineers throughout the United States recently celebrated their profession during National Engineers Week. With these celebrations, there were various activities designed to bring a public awareness of the accomplishments of engineers and also to educate young students about careers in engineering. It was my privilege to represent our association at many events in the Chicagoland area. Among those events was our own contest this year, the

AAAAEA Essay/Poster Contest, (see article by Dr. Soliman Khudeira). I was also present at the High School Bridge Building Contest at IIT and the Chicagoland Engineering Award Benefit at the University Club of Chicago at which AAAEA members and members of more than 30 engineering societies gathered to honor the profession and network with other professionals and civic leaders. AAAEA also participated for the first time at the Du Page Area E-Week Expo with a display, exhibits and presentations (see my article titled "Engineering the Future").

During E-week Expo, I explained to students that engineers make lives better, safer and healthier and that we touch everything people use at work, schools or at home. Many students asked whether engineering is a well paid and a rewarding career and I assured them that it is the best career for the future.

During the Chicagoland Engineering Award Benefit, student awards were presented in the City-Wide MathCounts Competition, Chicago Regional Bridge Building Contest, Illinois State Science Fair, Future City Design Competition, AAAEA Essay/Poster Contest, and the First Robotics Program. The AAAEA Essay winners were presented with checks, certificates, a set of encyclopedias donated to students by World Book, and a goody bag donated by PB Americas, Inc. Many thanks to volunteers, sponsors, and contributors who made our E-week events a big success. Please continue to raise awareness of just how rewarding an engineering career can be and I hope to see all of you next year.

Many of you know that our activities have not been limited to seminars, EIT classes and E-week activities (check our calendar for list of upcoming

*continued on page 9*

## UPCOMING EVENT

### AAEA Spring Technical Conference

The Conference program consists of 6 Technical Presentations by invited speakers. Structural Engineers will be awarded 3 to 4 PDH Hours for Continuing Education.

**Date:** Saturday, May 12, 2007

**Time:** 8:30 am (registration) • 9:00-4:30 pm

**Place:** UIC  
ERF  
842 W. Taylor, Room 1047, Chicago, IL

**Cost:** \$25 (members) • \$50 (nonmembers)

**Notes:** Lunch & refreshments are included in the cost  
Reserve by May 10, 2007

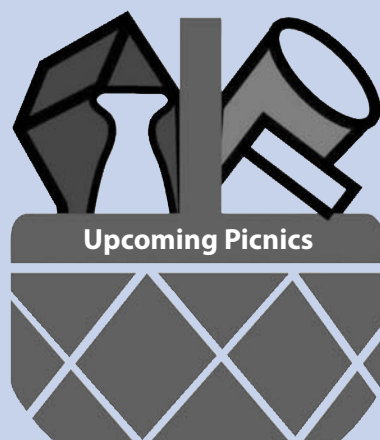
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### EDITOR'S NOTE

I would like to thank all members for their contributions to the Newsletter, especially *Mustafa Mahamid*, *Jamal Grainawi*, *Soliman Khudeira*, and *Maher Abbasi*. We are always in need of articles for the Newsletter, so we strongly encourage you to send in material to us.

Ibrahim Shillo, Publication Committee Chair  
[aaaea@aaaea.org](mailto:aaaea@aaaea.org)



#### Upcoming Picnics

**Picnic #1** - June 10th  
South Side- Wolf Road Woods,  
Grove # 1, 95th St near Archer Ave,  
Willow Springs, IL

**Picnic #2** - July 8th  
North Side- Labagh Woods, Grove  
#1, Cicero Ave just North of Foster  
Ave, Chicago, IL



### CALENDAR OF EVENTS

#### March 2007

**31st** – Annual Social Dinner

**31st** – Deadline for Nomination

#### April 2007

**7th** – ½ Day SE Review Course:  
Basics of Bridge Design

**26th** – Technical Seminar

**28th** – International Bridge  
Contest at IIT

#### May 2007

**12th** – Spring Technical Conf.

**19th** – Elections

#### June 2007

**10th** – Picnic #1

**27th** – Chicago Arabesque at  
Daley Plaza, Chicago,  
June 27th thru 30th

**28th** – Technical Seminar

#### July 2007

**8th** – Picnic #2

**26th** – Technical Seminar

### Engineering the Future DuPage Area Engineers Week Expo 2007

By Jamal Grainawi, PE, SE

This Expo is held every year during National Engineers Week at the Illinois Institute of Technology Rice Campus in Wheaton, Illinois. The Saturday program draws close to 2000 middle-school students and provides hands-on exhibits that introduce the students to all different types of engineering. It takes a lot of planning and volunteering to make this Expo the success that it is. The Steering Committee is chaired by Barbara Kozi of IIT and is made up of volunteers from various engineering societies, including AAAEA (first time), ASCE, SAE, SEAIO, and WSE.

This year, AAAEA program included a Hallway display tables and exhibits area with information about AAAEA and our essay/poster contest. The winning entries from our essay/poster contest were at display also. The AAAEA exhibits included surveying equipment with hand-on demonstration for the student. Electrical model car designed by Tim Sahouri with sensor guide were also at hand. Students get to direct and maneuver the little car by waving their hand near the sensor and without touching it. Several major highway engineering project plans were at hand too.

AAAAEA program included also PowerPoint presentations on careers in engineering at 11:00 am, and 1:00 pm, by Jameelah Muhammad of PB and Dr. Soliman Khudeira. We also had a special "Ask An Engineer" event, which involves a team of engineers from several fields of engineering answering students questions. Dr. Kazkaz presented his invention at 12 noon and showed a short movie about it too. AAAEA also did a load capacity test on a balsa wood tower structure. Students and parents were able to guess throughout the day how many pounds the structure will be able to support. The tower structure was tested to destruction at 2:00 PM. The structure weighs 11 grams and was built by Nasser Grainawi (AAAAEA Student member at UIUC) in 1995 as part of a school contest. The testing stand was built by Jamal Grainawi few days before the Expo. Ahmad Hammad provided most of the weights to be used for testing. We had huge crowd of students, parents and

engineers witnessing the test. Jamal Grainawi and Ahmad Hammad conducted the test. Our little balsa wood structure carried all the weights that Ahmad provided. Then I added my weights 10 pounds at a time. We were about to run out of weights when finally the structure fail in buckling under 335 pounds. Only one person guesses close to this load. Ms. Angel Vences guessed 338 pounds. She won a \$20 gift certificate.

I would like to thank all the volunteers for taking the time and making this event a big success. In addition to Jameelah Muhammad from PB and Dr. Soliman Khudeira. Many thanks go to Dr. Hossam El-Mousri, Dr. Ghaffar Kazkaz, Dr. Ahmad Hammad, Mustafa Hassan, Tim Sahouri, Mueen Musa, Nabeel Aldrees and Mr. Syed Kazi. I also want to thank all individuals and families who showed up with their children and participated in this Expo. For more info on this expo, please visit [www.rice.iit.edu/engineersweek](http://www.rice.iit.edu/engineersweek)

I hope to see all of you involved in these events next year and I encourage you to get your children involved too. Please visit our website to browse photos of the event.

### AAAAEA Essay/Poster Contest

By Dr. Soliman Khudeira, PE, SE

As part of the E-week, AAAEA sponsored Essay/ Poster Contest. The contest was open to all students in the 3<sup>rd</sup> through 8<sup>th</sup> grades in the Chicago land area schools. Students submit an essay and a poster about an engineer that they admire or have made an impact on their life.



*continued on next page*

## E-Week 2007 – Review of AAAEA Participation

The essay should explain who the engineer is and why the student admires this engineer. The poster should depict some aspect of the engineer and the engineer's accomplishment. The purpose of the contest is to stimulate students to consider careers in engineering by fostering interest in engineering through research, essay writing, creating a poster and interacting with engineers. The winner from each contestants group received a \$75. The three groups are: 3<sup>rd</sup> & 4<sup>th</sup> Grades Group; 5<sup>th</sup> & 6<sup>th</sup> Grades Group; and 7<sup>th</sup> & 8<sup>th</sup> Grades Group. The winners were invited to attend the Washington Award Banquet on

Friday, February 23<sup>rd</sup> 2007 and the winning essay/poster were displayed during this event. The Essay and Poster were judged on pre determined criteria including: originality of thought, creativity, does the poster depict some aspect of the engineer and the engineer's accomplishment, has the student expressed him/her thoughts clearly, and neatness.

Contest coordinator: Jamal Grainawi; Chief Judge: Dr. Soliman Khudeira; Others judges: Dr. Hiba Abdalla and Dr. Ghaffar Kazkaz



### Winners of the 2007AAA EA Essay/Poster Contest

Group#	Names	Grade	School	Admired Engineer
<b>– 3rd and 4th Grades –</b>				
1	Jenna Hammad	4th	Bridgeview Elementary School	Father - Ahmad Hammad
<b>– 5th and 6th Grades –</b>				
2 (tie)	Sally Ploch Jessica Hedrick	6th	Gray M. Sanborn, Palatine	Arthur Fry
2 (tie)	LeiAnn Watanuki Lauren Brooks	5th	Gray M. Sanborn, Palatine	Judson Whitcomb
<b>– 7th and 8th Grades –</b>				
3	Yousef Hammad	7th	Wilkins Junior High School, Justice	Thomas Edison

## Annual Election Meeting – May 19, 2007

You are cordially invited to join us for the **2007 AAAEA Elections**. The Annual Election Meeting will be held on **Saturday, May 19, 2007 at the UIC Campus, 842 W. Taylor Street, Room 1047, Chicago, IL.**

Membership must be current in order to participate in the election. Lunch will be served exactly at 12:30 pm.

### Meeting Agenda:

- 11:00 Annual Reports by Officers and Chairpersons
- 11:30 Amendment Proposals to the By-Law
- 12:30 Lunch served
- 1:15 Nominee Presentations
- 1:45 Election Event
- 2:00 Association Business
- 2:30 Announcement of new Board Members

A list of all nominated members for board positions will be distributed at the beginning of the election event. All Engineers, Architects, and IT professionals are encouraged to attend and participate. If you have any questions, please call (312) 409-8560 or email us at [aaaaa@aaaaa.org](mailto:aaaaa@aaaaa.org).

## Education Committee February Dinner Meeting: Inspection, Load Testing and Rating of In-Service Bridges

*By Moussa A. Issa, Ph.D., P.E., S.E.*

*Chief Structural Engineer, HBM Engineering Group, LLC*

In this seminar, Dr. Issa discussed the procedure of load rating existing bridges through non-destructive load testing, and the utilization of existing Finite Element Analysis (FEA) software packages to evaluate the load carrying capacity of in-service bridges. The objectives of these bridge tests are (a) to rate existing bridges; (b) to design and evaluate the repairs of damaged bridges; and (c) to diagnose the bridge behavior for some special issues, such as live load distribution and dynamic impact factors. These field measurements and FEA are invaluable sources for checking the design code specifications.





### Texas

The AAEEA-TX held an interesting seminar at the University of Houston on March 6 2007. The Title of the seminar was "Computational Engineering in the Oil and Gas Industry" by Dr. Amr Al Bakry from Exxon Mobil Upstream Research Co, and Adjunct Professor at Rice University. The seminar highlighted the recent advances in computer techniques that helped engineers in the oil and gas industry to become more efficient in developing reservoirs, drilling wells, and producing hydrocarbons. Some of the most important advances in this exciting and rapidly developing field of computational engineering was covered

The AAEEA-TX is having its second election for 2007-2008 executive board on May 2007 for the following positions: President, Vice-President, Secretary, Treasurer, Student Representative, Membership Committee, Financial Committee, Education Committee, and Activity Committee Chairpersons. The association is holding its general assembly meeting to discuss some of the by-laws issues at the election meeting.

### Seattle

A group of engineers, Architects, and computer professionals met with Mr. Jamal Grainawi, AAEEA President, in Seattle in February and formed a steering committee for the AAEEA Seattle. The meeting highlighted the AAEEA goals, eligibility to join the association, and the 10 year Chicago experience presentation by Mr. Grainawi. The steering committee members of the AAEEA Seattle consist of:

Jamal Mahmoud	Nabil Makkawi
Kamil Amirah	Samir Sarhan
Husam Rabi	Mohammad Sarhan
Hadi Armouch	Omar Sarhan

The AAEEA Seattle which has 17 active members is having its first official meeting in the third week of March.

### Louisiana

The steering committee of the Arab American Engineers In Louisiana (AAAEL) in Baton Rouge is reviewing the by-laws and are planning to vote on them by the third week of March. They are planning to register the association in the state of Louisiana after they approve the by-laws. The association is having its first activity by the end March, which is a technical seminar by the Dean of Engineering at Louisiana State University.

### Florida

The chapters of the AAEEA in Florida, South Florida, Orlando, and Tampa have reviewed the by-laws and planning to register their associations with the state of Florida on April 2007. Tampa has elected its steering committee and appointed a president, a secretary, and a treasurer temporarily until the election. The three chapters in Florida are studying the avenues of cooperation between the three different chapters. Tampa is having its first picnic on April 2007 and planning for elections in the Fall of 2007. South Florida chapter is also planning the first picnic on April 2007.

### Indiana

The Indiana AAEEA had a kick-off meeting on Saturday, March 17 in the Indianapolis area. The steering committee and volunteers discussed possible activities for 2007, will register the association in the state of Indiana, and will start working on their by-laws.

### Peoria

A presentation to a group of 25 Engineers from Peoria was made by Bilal Almasri, Jamal Grainawi and Hiba Abdalla on December 8th at the offices of Terra Engineering in Peoria to enquire about the formation of a chapter for the AAEEA in Peoria. The presentation was very successful and led to the formation of an Ad-Hoc committee in Peoria. The committee has been meeting regularly (every two weeks) to establish the guidelines and solicit additional members. Currently the Peoria Chapter includes approximately 20 members with great expectations for an increase in membership.

Currently the Peoria Committee is in discussion with the Chicago Organization to update the bylaws of the organization to allow the additions and creations of Chapters for the AAEEA throughout the State of Illinois. Once that process is completed, it is anticipated that a Peoria Chapter will be officially formed. Currently the Peoria Committee includes the following officers:

George Ghareeb, President  
Ali Bitar, Vice President  
Husam Samman, Secretary  
Mustafa El Salah, IT specialist  
Riyad Al-Harithi, Treasurer

The Peoria Chapter established a membership sub-committee which is headed by Ali Bitar. Ali and Mustafa will assist in reaching out to the Arab

## National Outreach

Engineers within The Caterpillar organization in Peoria, George and Riyad will reach out to the Arab Engineers within the Department of Transportation in Peoria and George and Husam will reach out to the professors in Bradley University.

The committee holds frequent conference call with the Chicago organization to update and transfer information. The Peoria group is planning on holding a conference on Engineering leadership and Importance of acquiring the EIT/PE examinations.

### Michigan

Michigan AAEEA has been active in all avenues recently, Mr. Sermed Saif, AAEEA president, has reported the following:

We are very proud of our association and the steady growth we have achieved since our inception in June of 2005. We have held general monthly meetings, invited a few guest speakers,

participated in many community functions, and hosted several social gatherings and functions.

Our Executive Board is in the process of updating our by-laws to reflect our current goals. Many committees have been formed to aid the Board in conducting our operations. In addition, we have reviewed the national 5-year plan at length and received positive feedback from the Board and members.

We have an excellent core of humble working professionals dedicated to serve this association. Everyone has proven their genuine commitment in many occasions during the past 21 months. To date, our affiliates consist of 104 total members (103 professional and one student), and two advisory board members.

We always appreciate Chicago's wisdom, support, and feedback in helping us move ahead. Additionally, Abder Ghoulah and Bilal Almasri have been instrumental in our progress since day one.

## AAAEA goes to New Jersey

The Arab American Association of Engineers and Architects (AAAEA) met with Arab-American engineers, architects and IT professionals from the Tri-State area (New York-New Jersey-Connecticut). The meeting was held on January 20th, 2007 in Lyndhurst, NJ. It was the first meeting for the Tri-State engineers, architects and IT professionals and there were 35 in attendance.

The group from the Chicago area's AAAEA included members from their National Outreach Committee: President Jamal Grainawi, Trustee Bilal Almasri and Chairman Abder Rahman Ghoulah. Mr. Bilal Almasri made the AAAEA Presentation describing the organization, activities, and 10-year history of the strictly professional organization. The Committee also shared their experiences with the audience.

The engineers were motivated to replicate the association and decided to establish a not-for-profit professional, non-religious, non-political organization dedicated to serve the Tri-State Area Arab American engineers, architects and computer scientists. Seven members were selected to form a steering committee to initiate the process until elections.

Chairman Abder Rahman Ghoulah said "The AAAEA congratulates the Tri-State Arab American Association of Engineers and Architects for officially being registered in the State of New Jersey on February 14, 2007. We look forward to cooperating and networking with them more."



# AAAEA Student Chapters will Bridge the Gap

By Jamal Grainawi, PE, SE

The following article is my point of view and recommendations, and AAAEA has not adopted what follows. I am hoping that this article will generate momentum and stimulate students to join the association and form student chapters.

The Arab American Association of Engineers & Architects (AAAEA) is working on amending the association by-laws to deal with establishing student chapters within each state. These student chapters will be an extension of our associations, offering students in the engineering, architectural and computer science fields the opportunity to see firsthand how our profession works. College students are encouraged to join AAAEA through reduced membership dues. The AAAEA Scholarship Program helps students further their education in the engineering, architectural and computer science fields.

## 1.0 Sponsors (Recommendations)

Student chapters must be sponsored by the students' college or university and AAAEA. Within this sponsoring group, the student chapter's faculty advisor must be an employee of the school and is an AAAEA member. The faculty advisor must be knowledgeable of the objectives of AAAEA and be willing to help guide the group. The faculty advisor will assist the student chapter with the running of their meetings and elections, will oversee their budget, and will assist them with compliance of reporting requirements. A committed faculty advisor is very important to the success of the student chapter to provide continuity as active student chapter members' graduate.

If there is no faculty advisor who is a member of AAAEA, the association may wish to organize a student chapter and acts as its sponsor. The president of a sponsoring association or his/her representative will also serve as a student chapter advisor.

## 2.0 Operation (Recommendations)

The student chapter needs to elect officers, develop bylaws and hold at least three meetings during the year. Election of officers should take place before graduation in the Spring semester and the new officers should take office starting with the Fall semester. The student chapter operates essentially, as other chapters do. In particular, the student chapter needs to make sure that:

- 2.1 Bylaws are consistent with AAAEA objectives and are submitted to the AAAEA Executive Board for approval.
- 2.2 All student chapter members need to be members in good standing of AAAEA.
- 2.3 I recommend that student chapters file an annual appropriation form. This will allow the student chapters to be eligible for \$5.00 appropriation from AAAEA based on the number of AAAEA student members who have attended two or more meetings during the previous twelve (12) months.
- 2.4 The student chapters have meet the following to be eligible for appropriation:
  - 2.4.1 All minutes need to be submitted to AAAEA.
  - 2.4.2 All officers must be members of AAAEA.
  - 2.4.3 Student chapter needs to have held at least three (3) meetings during the previous twelve (12) months.
  - 2.4.4 Student chapter must file an Annual Report with AAAEA.

## 3.0 Activities

These student chapters work like any other extracurricular student activity.

- 3.1 Student chapters are encouraged to participate actively in the AAAEA Scholarship Program. The AAAEA also raise money toward scholarships and award scholarships annually to qualified students.
- 3.2 Student chapters may wish to develop special recognition awards.
- 3.3 Students are invited to attend AAAEA meetings and AAAEA also will hold special student nights. This gives students the opportunity to network with individuals who are already active in our profession. "The goal is to show students what career opportunities there are."
- 3.4 Student chapters will bring in guest speakers at regular meetings throughout the school year and Students take part in field trips to see engineering project in action. All of this exposure leads to even better things for students who are looking to build their experience. The students get to



see outside of the school, and they get to learn and see more about our profession. Students will be able to impress future employers.

3.5 Student chapters may wish to work actively in community programs, participate in science fairs, E-week and work with their college or university to increase Engineering awareness.

The advantages are numerous for a student involved in one of these chapters. Here are few of the advantages:

- Ability to network/ partner with AAAEA and make contacts that will help in finding a job. Through networking, the students can get involved in internships and even make contacts for future jobs.
- Leadership growth and exposure as student leaders in AAAEA.
- Greater exposure to AAAEA members and leaders.
- Participation in AAAEA Scholarship Program is for student members only.

- AAAEA resources are available as needed free of charge to help increase membership in these chapters.
- Participation in chapter projects and activities that will help you prepare to enter the profession.
- Access to education opportunities.
- Participate in field trips to see engineering project in action and learn beyond the campus. And as always, "The best education is outside the classroom."

Help nurturing these student chapters and promoting them, our association, our members and others in our profession are also will benefit by not only seeing the possibility of more engineers, architects and computer scientists, but better qualified employees. If you want to see where the qualified engineers, architects and computer scientists of the future are, look no further than these student chapters.

If anyone has comments on this article, please forward them to [aaaaea@aaaaea.org](mailto:aaaaea@aaaaea.org).

### President's Message, continued from page 1

events). We also have been very active contacting other cities and colleges to help them establish sister associations and student chapters. Please see articles from the National Outreach Committee and the Student Chapter at UIUC. We also invite you to join us for our Annual Social Dinner on March 31. Along with networking, soft music and dinner, we will have a return of the raffle and the popular trivia contest with prizes. If you have not done so already, contact us and reserve your tickets now as tickets were sold out for the event the past two years. Membership renewal notices will be sent to you soon, please take a moment to renew your membership.

I encourage you also to invest time in professional growth and volunteerism. We all often find ourselves so busy with work that we do not have sufficient time to attend seminars or volunteer to help others. Work and family will always take priority. However, recognize that this association has become what it is now because the hard work of people like you. In order for our association to continue helping our members, future engineers, our community and the profession at large, we need you (our members) to volunteer a few hours of your time and take a leadership role in

this association. On May 19th, as the current executive board term comes to an end, the association's members will elect a new board. Nominations are being solicited, as per a letter e-mailed to you on January 31st, for all positions of the Executive Board. These positions include: President, Vice President, Treasurer, Secretary, IT Officer, and Chairpersons of the following committees: Education, Membership, Activity, Financial and Publications. All qualified members are encouraged to run and be active in the continuity and success of this great association. The nomination process will be as per the association Bylaws and conducted by the Nomination Committee chaired by Ahmad Basrawi.

As always, we hope you will share with us your thoughts, requests and suggestions to help us serve you better. Your involvement in our association and activities will help not only you, but also all of us. One small way in which you can help is to please renew your membership as soon as possible.

Regards,  
*Jamal Grainawi, P.E., S.E.*

## University of Illinois at Urbana-Champaign (UIUC) Chapter

The Arab American Association of Engineers & Architects (AAAEA) began a new phase by establishing its first student chapter at the University of Illinois at Urbana-Champaign (UIUC). The first meeting of the newly established student chapter was held on Monday, February 19<sup>th</sup> 2007 at UIUC campus in Urbana, Illinois. This meeting was considered an informative meeting during which AAAEA president, Mr. Jamal Grainawi, gave a presentation about the history of the AAAEA, the mission and vision of the organization, and the objectives behind establishing the AAAEA. Fourteen students and one professional engineer from different engineering disciplines attended this meeting.

During his presentation, Mr. Grainawi highlighted the importance of establishing a student chapter in such an outstanding academic institution to extend the services of the AAAEA to Arab engineers to be. These services include administering preparation courses for the EIT, networking, and social activities. This chapter is intended to help its members com-

municate with other AAAEA members from different chapters in the US, to help its members participating in the university and community activities, and help its members enrich their knowledge by inviting guest speakers from both the academia and the industry.

This meeting was arranged by the first steering committee of the new chapter, which consists of Ibrahim Odeh (chair), Wallied Orabi (vice chair), Omar El-Anwar (secretary), and Hisham Said (treasurer). The first task of this committee will be to administer a survey among the Arab engineering students in UIUC to figure out their common interests and needs. Based on the feedback of the students, the committee will begin planning for future activities for the chapter.

*Ibrahim Odeh*  
*Wallied Orabi*  
*Omar El-Anwar*  
*Hisham Said*



## Roadway Planning and Design Topics – Part VI: Context Sensitive Solutions

By Dr. Soliman Khudeira, PE, SE

This is the sixth and last article in a series of articles that discussed various topics related to roadway planning and design topics. Each topic was discussed in limited detail and illustrated, as applicable, by citing a typical roadway project. Part I of this series discussed roadway classification, Part II discussed Needs Analysis, Part III discussed Value Engineering, Part IV discussed Environmental Assessment and Project Scope, Part V discussed Cost Methodology, and Part VI discusses the Concept of Context Sensitive Solutions.

### Context Sensitive Solutions (CSS)

CSS is an interdisciplinary approach that seeks effective, multimodal transportation solutions by working with stakeholders to develop, build and maintain cost-effective transportation facilities which fit into and reflect the project's surroundings through early, frequent, and meaningful communication with stakeholders, and a flexible and creative approach to design. The resulting projects should improve safety and mobility for the traveling public, while seeking to preserve and enhance the scenic, economic, historic, and natural qualities of the settings through which they pass.

CSS seeks to ensure that stakeholders' views are carefully considered in the decision-making process. The CSS involves the stakeholders early and often throughout the process, especially before major decisions are made. The information gained from partnering with stakeholders is then used to develop solutions to the transportation issue. The Federal government, through the Federal Highway Administration (FHWA), is encouraging states to adopt the CSS approach to transportation planning and design. Some state DOT's has implemented the CSS process and included guidelines on their websites (example: Illinois-DOT: [www.dot.state.il.us/css/home.html](http://www.dot.state.il.us/css/home.html))

The Design team of the 130<sup>th</sup> Street / Torrence Ave. / Brainard Avenue Realignment and Grade separation project in Chicago has continuously involved the stakeholders in the decision making of the project elements. Coordination with the adjacent industries resulted in a construction staging and traffic detours that met their needs. Also, coordination with the

adjacent residential home owners resulted in a design that is acceptable to all which included the construction of a concrete noise wall. The wall's material, shape, color, and related landscaping were all selected by the residents. Exhibit 1 shows the installed noise wall



*Exhibit 1. Noise Wall Isolating the Residential area from the New Roadway*

The design of Torrence Avenue and 126<sup>th</sup> Place (a new two miles roadway) was a complex project that required value engineering (VE) studies for various items in order to arrive at the preferred solution that is context sensitive. For instance, a VE study was conducted to determine the type of pavement to be used on this project. It was found that one type of pavement does not fit all conditions. Therefore, three types of pavement were selected (Exhibit 2):

- Pavement Type 1: was used whenever the roadway is adjacent to residential areas. Bituminous surface was used since it produces less noise from vehicles than concrete surface.
- Pavement Type 2: was used due to unstable sub-grade conditions. Concrete pavement could not be used in this case, and therefore, flexible pavement (bituminous base) was used to minimize pavement cracking
- Pavement Type 3: was used whenever the roadway passes through industrial area. This pavement was used since the noise level is not an issue adjacent to industrial areas.

The usage of the three types of pavement resulted in cost saving and a design that is context sensitive to the needs of the adjacent stakeholders.

*continued on next page, Exhibit 2*

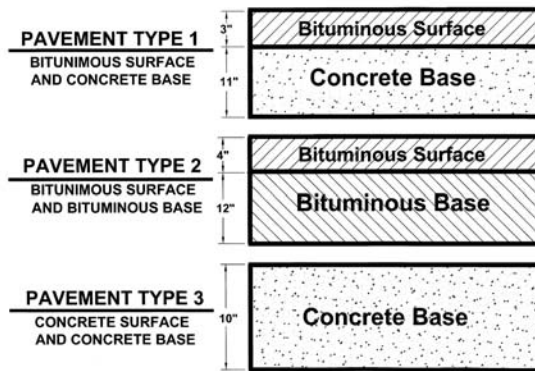


Exhibit 2. Various Types of Roadway Pavement

## 10<sup>th</sup> Anniversary look-back at the AAEEA's first ever Annual Report

### A Message from the First President (1999)

Congratulations to all members on our first anniversary and happy birthday AAEEA!

It has been a full year of hard work and accomplishments for our organization, a year of joy from meeting and helping one another and a year of networking at its best. I must admit that I am pleasantly surprised with our achievements after just one year and needless to say this would not be possible without your support and contributions.

If someone had asked me in the fall of 1996 what I would hope to accomplish in two years, I would not have predicted this. Our accomplishments include a membership approaching 150 individuals and the potential of another 100 new members in the coming year. Our membership is also representative of over 20 professional firms and we've assisted our members and engineering firms in obtaining numerous work opportunities.

In order for us to expand our networking, we are proposing the creation of a caucus for all the professionals in the Chicagoland area. This will include the doctors, lawyers, engineers, dentists, accountants, etc.

In addition to recognizing these accomplishments and the potential for this association, I must also point out the challenges as well. They include the following:

- To remain a non-political and non-religious organization. Any deviations or attempts to deviate from this will result in the weakening and possible failure of this association. We must concentrate on our common goals and avoid issues that divide. Each and every one of us must work hard in this direction to protect our young and purely professional association.
- We must attract more members and expand our horizons. I challenge each and every one of you to invite a fellow engineer or architect to join our association. If we succeed in doing this we will double our membership over the next year.
- To utilize our knowledge, relations, and power to serve humanity, particularly our community. In order for us to do so we should ask ourselves a question, "What can I do to help?" Every member must contribute in order for this association to grow.

These are some of the challenges in the future. I have no doubt that we will live up to them and succeed.

*Bilal Al-Masri*



## Solar Energy for Desalinating Seawater and Producing Electric Power

By Maher Abbasi

This article focuses on a new-patented invention, of Mr. Hammam Battah, P.E, Civil Engineer for utilizing Solar Energy and Ocean Water to convert in to Fresh Water and Electric Energy for a fraction of the cost of conventional methods. [www.solarwaterenergy.net](http://www.solarwaterenergy.net)

Floating Solar Cells are installed within 100 feet of Coastal line with glass top and heavily thermal insulated walls with a depth of 60 feet. Solar Energy increases the contained water in this structure while the desalination process continues through out the year. The heating period required to start the process varies from one to eight months depends of the depth of the water in the cell and the operating temperature required, the average can be 3 to 4 months.

When heating water using a lower heating source, the lower water is heated first so it expands and becomes lighter then it moves to the top. Colder water replaces the hot water to be heated in turns. This way causes water to circulate and all of the heated water reaches boiling point at the same time. Unlike heating water from a lower heating source, the sun heats the upper water layer that does not make the water to circulate. That creates large difference in temperature between the upper water and the lower water layers.

When sun heats the water in the Floating Solar Cells, the solar energy is trapped and cannot be cooled down at night as much as the outer seawater because the cell's wall is thermal insulated. The temperature increases day after day until it reaches the operation point, 80C to 100C.

The larger Cells are more efficient. When doubling the sizes of the cell, the heat lose of the walls doubles while the surface that receives the Solar Energy shine doubles 4 times, which makes it more efficient. Therefore, the sizes of those cells shall be large enough to be efficient.

Any water has a vapor pressure at any temperature; the higher temperature creates higher vapor pressure. When vapor pressure reaches the atmospheric pressure, the water starts to evaporate. At sea level,

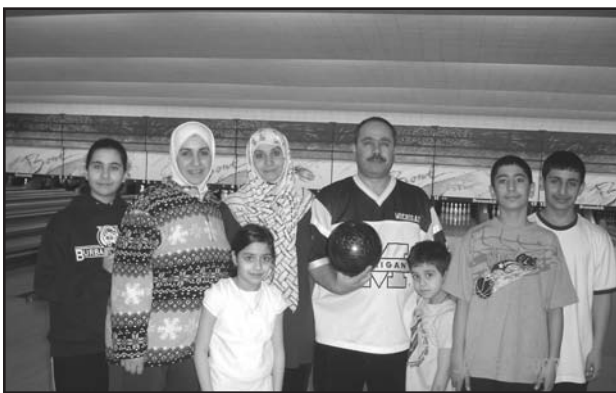
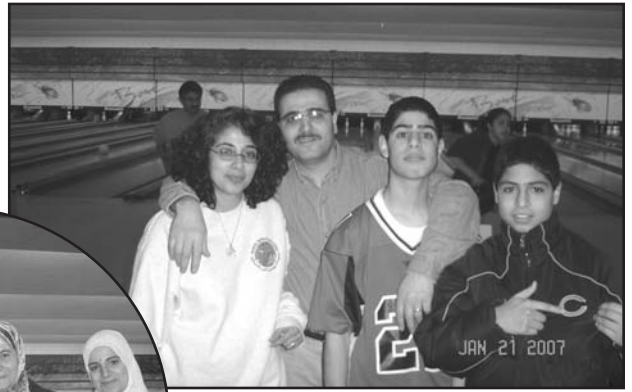
the needed vapor pressure to evaporate water can be met when the water temperature reaches 100 C; however, at elevated areas such like mountains the water evaporates at a lower temperature than 100 C because the atmospheric pressure is lower, therefore, the vapor pressure needed to equalize the atmospheric pressure can be met at a lower temperature than 100 C. The water evaporates at any temperature depends on the applied pressure.

At the Desalinating Cell, the upper mass water becomes much more warmer than the lower mass of water. When applying a lower pressure inside the Cell, the water evaporates at temperature lower than 100C. The vapor moves into pipes and heat exchangers to cool it down and turn into PURE WATER. The heat exchangers are located at the lower colder water cools vapor and heat the colder water and move it higher up. So the lose in energy become very little and increases the efficiency of the Desalinating Cell.

Same Cell can be used to generate electricity. The higher water is much more warmer than the lower, up to 60 C. The vapor pressure of the highest water is much higher the lowest. The vapor is released to move through a pipe between the highest vapor pressure and the lowest pressure, it moves fast enough to run a turbine that generates electricity. This Electricity can be used primarily for distribution systems. Beside the construction cost, the operation cost may reach 1000 times less than any other conventional methods.

A similar project, to produce electricity from the difference in temperature at the ocean, was abundant in 1980's because the cost was about 30% higher than that was produced using oil. The difference in temperature was only 20 C, and the oil price was about \$20. Nowadays the oil prices is three times higher than what it was at that time, even with considering the inflation in prices, the prices did not increase as much as did the oil prices. Also when comparing the operation efficiency, at the desalinating cell, it is 3 times higher, that makes the project very efficient in producing electricity same as producing PURE WATER and reduces the causes of most of the wars.

# 2007 Bowling Party - January 21st



## Announcements and News

Congratulations to Mohammed Rashed and wife Nancy on their baby girl!

Congratulations to Ahmad Safi for landing a new job!

Congratulations to Mohamad Hamoudeh on landing new job.

Congratulations to Nabeel Garbo on landing new job.

Congratulations to Nabeel Aldrees on his new job!

Congratulations to Sam Ali for landing a job in California.

Congratulations to Hani Mayzoni for landing a job with the City of Chicago.

Condolences to Omar Zayyad & family on the passing of his father.

Condolences to Nayef Ghusein & family on the passing of his mother.

### Special Thanks to Following for their contributions to AAAEA Programs:

Scholarship Fund		Annual Social Dinner		E-Week Essay/Poster Contest	
Creative Designs	\$2,000	Concordia Group, Ltd.	\$250	Applied GeoScience Inc.	\$150
Area Wide Property Mgmt.	\$1,000	Delta Engineering, Inc.	\$150	HBM Engineer Group	\$150
Inverbrass Fund	\$1,000	Alpha Engineering Ltd.	\$140	S.A.M. Consultants, Inc.	\$250

*If you have an announcement on any member, please email it to us at [aaaaa@aaaaa.org](mailto:aaaaa@aaaaa.org)*



*Trustees and Executive Board attended a special joint boards meeting on Saturday, March 10 at UIC to discuss AAAEA future Chapters (In-State & Student Chapters).*

## Welcome New AAAEA Members

Omar Zayyad

Jeries Abou-Hanna

Ali Alteeti

Yousef Anbar

Inaam Tahhan

Ibrahim Sameer Odeh

Ahmad Safi

George Nasr

Najdat Asaad

Labib Elias Asaad

Sobhi Lababidi

Joseph Wakim

Mustafa Alsaleh

Husam Samman

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Elmahi Bakash

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