NAAAEA E-Newsletter – August 2023
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President’s Message

Dear NAAAEA Chapter leaders and Chapter members:

The 2023 NAAAEA Annual Conference will be in around November 2023. Date and venue will be announced soon.

The Education Committee hosted a webinar on August 10, 2023. See following gages of this newsletter providing limited detailed about this 2-hour webinar. The recording is already on our website under EDUCATION-WEBINARS.

NAAAEA has revamped the website (https://nationalaaaea.org/). Please visit the site to explore its current offerings.

We continued all the programs which were initiated by previous NAAAEA boards.

We introduced a new “Grant for Students Initiatives”, and we introduced a new “NAAAEA Projects”.

We also introduced new programs, this include Mentorship Program, Retiree List, University Professors List, Speakers List, Arab-Owned Companies List, and Book of NAAAEA Policies.

We established a “Book of NAAAEA Policies”. One of these policies is a “Policy and Guideline on How to Start a Chapter in your State”.

We also introduced two new Awards: Outstanding Young Engineer Award, and Outstanding Student Award.

All of the above programs, initiatives, policies, and awards are currently on the website (https://nationalaaaea.org).

All are encouraged to:
1. Consider joining a program or initiative
2. Nominate candidates for the Outstanding Student Award or the Young Engineer Award
3. Provide feedback on the website contents
4. Forward this E-Newsletter to your members and others and encourage them to participate
5. Recommend any other programs or initiatives. NAAAEA will investigate the feasibility of your recommendation and implement, if found feasible.

Looking forward to hearing from you.

Dr. Soliman Khudeira, Ph.D., S.E., P.E., F.SEI, F.ASCE
NAAAEA President
8/10/2023 Webinar Presentations

1. How can exam refresher classes assist you in passing the FE/PE exams:
   Chris Miller and Nabeal Khatib, PE

2. Turkiye-Syria 2023 earthquake:
   Dr. Soliman Khudeira, PhD, PE, SE

3. Enhance your career network via LinkedIn:
   Hussam Alkhatib, PE

4. Growing your engineering career:
   Rami Asfahani, PE

5. MSE Walls - geotechnical design and construction:
   Dr. Hosam Salman, PhD, PE

6. Build your own engineering library:
   Nabeal Khatib, PE

The 2-hours recording is already on our website under EDUCATION-WEBINARS. See representative screen shots on the following pages from this webinar.
The 2-hours recording is already on our website under EDUCATION-WEBINARS
Modern Methods to Resist Earthquake Forces

1. Seismic Base Isolation
2. Seismic Energy Dissipation (Dampers):
   a. Tuned Mass Dampers (TMD),
   b. Tuned Liquid Dampers (TLD), and
   c. Viscous Dampers
3. Carbon Fiber Reinforced Polymer (CFRP)
4. Performance Based Seismic Design (PBSD)

Screen shots from the NAAAEA 8/10/2023 webinar

1. Golden Gate Bridge - Built in 1933 without Seismic Isolation

The 2-hours recording is already on our website under EDUCATION-WEBINARS
Screen shots from the NAAAEA 8/10/2023 webinar

The 2-hours recording is already on our website under EDUCATION-WEBINARS
Screen shots from the NAAAEA 8/10/2023 webinar

The 2-hours recording is already on our website under EDUCATION-WEBINARS
NAAAEA Mission Statement

NAAAEA is a professional Arab American association dedicated to help, strengthen, empower and inspire its members for excellence. NAAAEA promotes and advocates the Arab American Engineers, Architects and Information Technology professionals in the United States, by providing career and educational enhancement programs, technical exchange, fellowship, and community service. NAAAEA is a non-profit, non-political and non-religious Professional Association.

For more information, see the NAAAEA Bylaws (https://nationalaaaea.org/) On the “ABOUT US” tab
Announcements

National AAAEA Scholarship
Apply at https://nationalaaaea.org/scholarship-application/

The Education Committee will be hosting a webinar in August 2023. The topic is on Career Advancement and also project presentations. Date and speakers will be announced soon. Please let us know if you would like to be a speaker and/or add another topic.

Grant for Students Initiatives
This NAAAEA Grant Program has been developed to assist AAAEA students to advance their initiatives into the application stage.
Apply at https://nationalaaaea.org/grant-for-student-initiatives/

Grant for NAAAEA Chapters
This NAAAEA Grant Program has been developed to assist to assist the local chapters in growing and promoting their activities. Apply at https://nationalaaaea.org/grant-program/

Outstanding Student Award
Apply or Nominate others. See website https://nationalaaaea.org/grant-program/ for more details

Outstanding Young Engineer Award
Apply or Nominate others. See website https://nationalaaaea.org/grant-program/ for more details
Mentorship Program

The purpose of the NAAAEA Mentorship Program is to gather names of members who are interested in becoming a mentor to students and to those in the professional practice.

If you are interested in volunteering in the Mentorship Program, please visit https://nationalaaaea.org/ and enter your information the “Resources” tab.
Retirees List

The purpose of the NAAAEA Retiree List is to gather names of members who are interested in becoming a mentors to students. The list will also serve as a Resource to those who are in the professional practice.

If you are interested in adding your name to the Retiree List, please visit https://nationalaaaea.org/ and enter your information the “Resources” tab.
University Professors List

The purpose of the NAAAEA University Professors List is to gather the names of Arab Professors. The goal is to foster future cooperation among the professors on the list.

If you are interested in adding your name to the University Professors List, please visit https://nationalaaaea.org/ and enter your information on the “Resources” tab.
Speakers List

The purpose of the NAAAEA Speakers List is to gather names of Arab speakers who are willing to present their areas of expertise in webinars and conferences.

If you are interested in adding you name to the Speakers List, please visit https://nationalaaaea.org/ and enter your information the “Resources” tab.
Arab-Owned Companies List

The purpose of the Arab-Owned Companies List is to foster cooperation among the owner of the companies.

If you are interested in adding you company name to the Arab-Owned Companies List, please visit https://nationalaaaea.org/ and enter the information in the “Resources” tab.
The purpose of the Book of NAAAEA Policies is to provide these policies as a template for the chapters to use if they wish to use any of them.

See https://nationalaaaea.org/ website under “RESOURCES”.

If your Chapter is interested in a specific policy that is not currently on NAAAEA website, please contact NAAAEA (https://nationalaaaea.org/contact-us/) to prepare the policy and share with all Chapters to use.
Educational Resources

NAAAEA has various educational-related resources. See https://nationalaaaea.org/ website under “EDUCATION” tab.

The current Educational Resources include:
• FE Exam Resources
• PE Exam Resources
• PDH Certificates
• Webinars
• Articles
• Newsletters
• Submit an Article for the Newsletter

If your Chapter is interested in a specific educational materials (classes, webinar, PDH topics, etc.) that are not currently on NAAAEA website, please contact NAAAEA (https://nationalaaaea.org/contact-us/) to prepare the materials and share with all Chapters.
Volunteer to be part of the NAAEA Disaster and Emergency Relief Technical Committee

Simply send an email to info@nationalaaaea.org, or via NAAEA website https://nationalaaaea.org/contact-us/

This committee was established by NAAEA in response to the Syria-Turkiye earthquake. However, the plan is to have the committee ready to address future similar events.
Grant for NAAAEA Chapters

The NAAAEA Grant Program has been developed to assist the chapters in growing and promoting their activities.

Eligibility
All NAAAEA chapters are eligible to submit a grant application.

Amount of the Grant
Specify the amount you are requesting for the program or the project. Provide a brief breakdown of the requested amount. NAAAEA will award grant(s) based on the availability of funds.

Apply at
https://nationalaaaea.org/grant-program/
Grant for Students Initiatives

This NAAAEA Grant Program has been developed to assist AAEA students to advance their initiatives into the application stage.

Eligibility
All NAAAEA chapter Students are eligible to submit a grant application.

Amount of The Grant
Specify the amount you are requesting for the program or the project. Provide a brief breakdown of the requested amount. NAAAEA will award grant(s) based on the availability of funds.

Apply at:
https://nationalaaaea.org/grant-for-student-initiatives/
NAAAEA Scholarship

The NAAAEA scholarship was established by the National AIAEA and is presented to an Undergraduate or Graduate student in the areas of Engineering, Architecture, and Computer Science.

AMOUNT
At least one scholarship will be awarded annually in an estimated amount of at least $1,000.

ELIGIBILITY REQUIREMENTS
The NAAAEA scholarship is available to student members of who are attending an accredited university in the USA and must be a student-member in any one of the NAAAEA Chapters.

Apply at:
https://nationalaaaea.org/scholarship-application/
Application deadline: October 15, 2023
Career Center

The National Career Center is one of the NAAAEA programs that strive to provide the members with services, programs, and resources to advance their career to the next level.

This tab include:
• **Search for Opportunity**, and
• **Submit Job Opportunity**

See [https://nationalaaaea.org/](https://nationalaaaea.org/) website under “CAREER”.
On June 22, 2023, the OceanGate’s Titan submersible went missing shortly after descending toward the Titanic wreckage. After days of search, crews found debris from the vessel’s exterior on the ocean floor and determined a “catastrophic implosion” occurred that killed all passengers on board.

\[ H = \text{Depth of the submarine below water surface} = 4,000 \text{ meters} = 13,120 \text{ feet} \]

\[ \gamma_w = \text{Density of water} = 62.4 \text{ pound per cubic feet (pcf)} \]

\[ q = \text{Water pressure on the submarine in pound per square inch (psi)} \]

\[ q = (\gamma_w)(H) = (62.4 \text{ pcf})(13,120 \text{ ft}) = 818,688 \text{ psf} = 5,685 \text{ psi} \]

Compare this very high pressure on the OceanGate to other pressures: pressure on vehicle tire (32 psi), pressure on water mains (60 psi), high-pressure on gas mains (1,200 psi), atmospheric pressure at sea level (14.7 psi).
Introduction
During World War II, fighter planes would come back from battle with bullet holes.

Data Collection and Solution
The Allies found the areas that were most commonly hit by enemy fire, and they decided to strengthen the most commonly damaged parts of the planes to reduce the number that was shot down.

A mathematician, Abraham Wald, pointed out that there was another way to look at the data. Perhaps the reason certain areas of the plans were not covered in bullet holes was that planes that were shot in those areas did not return. This insight resulted in the armor (additional steel plates) being installed on the part of the plane where there were no bullet holes.

Conclusion and Recommendations
- The story behind the data is more important than the data itself.
- The reason behind why we are missing certain data may be more meaningful than the data we have (context matters)
- Take the time to do research to get past the headlines.
- Take the time to do the research to understand the situation with the available data.
Photo Article - Hardanger Suspension Bridge - Norway

- The longest suspension bridge in Norway
- Cost: $600 million
- The bridge is 1,380 meters (4,530 ft) long
- The main span is 1,310 meters (4,300 ft) long
- The vertical clearance above water is 55 meters (180 ft)
- The towers are 200 meters (660 ft) above sea level
- Two vehicle lanes
- Separate lane for pedestrians and cyclists
- The traffic volume is 2000 vehicles per day.
- The main span is one of the longest suspension bridges in the world
Submit an **Article** or a **Photo Article**

All are invited to submit an article to be published in the NAAAEA Newsletter. The article will also be uploaded to the NAAAEA website.

Technical articles related to the following fields are encouraged: Engineering (all disciplines), Architecture, and Information Technology.

Other topics are also encouraged, this include: leadership skills, time management skills, how to encourage volunteerism in not-for-profit organizations, etc.

Submit your article at [https://nationalaaaea.org/](https://nationalaaaea.org/) website under “EDUCATION” tab “SUBMIT AN ARTICLE FOR THE NEWSLETTER”
2023 NAAAEA Executive Board Monthly Meetings

Below is the 2023 schedule of the NAAAEA National Executive Board (NEB) Monthly Meetings. All are encouraged to contact us at https://nationalaaaea.org/contact-us/ and show interest in attending a board meeting. The purpose of your attendance is to provide feedback to NAAAEA and let us know your needs.

<table>
<thead>
<tr>
<th>#</th>
<th>Monthly Meeting from 7:00 pm to 8:00 pm CST (Last Thursday of the Month)</th>
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<tbody>
<tr>
<td>1</td>
<td>1/26/2023</td>
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<td>2/23/2023</td>
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<td>9/28/2023</td>
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<td>10</td>
<td>10/26/2023</td>
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<tr>
<td>11</td>
<td>11/30/2023 - Thanksgiving day</td>
</tr>
<tr>
<td>12</td>
<td>12/28/2023</td>
</tr>
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2023 NAAAEA National Executive Board (NEB) names and Contacts

Contact us. Let us know your needs

<table>
<thead>
<tr>
<th>#</th>
<th>2023 NEB members</th>
<th>Chapter</th>
<th>NEB Position</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dr. Soliman Khudeira, PhD, SE, PE</td>
<td>IL</td>
<td>President</td>
<td><a href="mailto:Soliman.Khudeira@iit.edu">Soliman.Khudeira@iit.edu</a></td>
</tr>
<tr>
<td>2</td>
<td>Abder Rahman Ghouleh, PE</td>
<td>IL</td>
<td>Vice President</td>
<td><a href="mailto:arghouleh@gmail.com">arghouleh@gmail.com</a></td>
</tr>
<tr>
<td>3</td>
<td>Nabih Hussein, PE</td>
<td>TX/Houston</td>
<td>Secretary</td>
<td><a href="mailto:nabihhussein@gmail.com">nabihhussein@gmail.com</a></td>
</tr>
<tr>
<td>4</td>
<td>Hussam Alkhatib, PE</td>
<td>IL</td>
<td>Treasurer</td>
<td><a href="mailto:hussam.alkhatib@graef-usa.com">hussam.alkhatib@graef-usa.com</a></td>
</tr>
<tr>
<td>5</td>
<td>Rami Asfahani, PE</td>
<td>IL</td>
<td>IT Committee Chair</td>
<td><a href="mailto:ramiasfahani@gmail.com">ramiasfahani@gmail.com</a></td>
</tr>
<tr>
<td>6</td>
<td>Nabil Khatib, EIT</td>
<td>CO</td>
<td>Education Committee Chair</td>
<td><a href="mailto:nabeal.khatib@yahoo.com">nabeal.khatib@yahoo.com</a></td>
</tr>
</tbody>
</table>

| BOD | Dr. Hosam Salman, PhD, PE | TX | BOD Chair | Hosam.Salman@wsp.com |
Sponsorship Opportunity

The National AAAEA (NAAAEA) is a non-profit organization, and it is IRS Tax Exempt under Section 501(c)(3).

NAAAEA has nine (9) Chapters in various States in the USA. NAAAEA and its Chapters have an impressive track record of technical seminars, E-newsletter, professional engineering conferences, social networking events, introduction to the Fundamentals of Engineering (FE) Exam, introduction to the Principles and Practice of Engineering (PE) Exam, introduction to the Structural Engineering (SE) License Exam, tutoring programs for the SAT and ACT tests for high school students, a scholarship program for college students, Grants for college student initiatives, and Awards to students and professionals programs.

Benefits of Sponsorship: Sponsorship benefits include:
- Your company logo & name will be displayed on the home page of the National AAAEA Website with an active link to your company website
- Your company logo & name will be included in the NAAAEA E-Newsletter
- You can advertise job postings on the NAAAEA website and thru email.
- Your company logo & name will be recognized and displayed at the annual NAAAEA National conference

Amount: $1000 – For a full year of benefits
Current NAAAEA Sponsors

Advanced Engineering Institute
http://www.aei-california.com

HBM Engineering Group, LLC
http://hbmengineering.com/

Terracon
https://www.terracon.com/

Milhem
https://www.milhemdtl.com/

Hvj
https://www.hvj.com/

Screen shot from the home page of the Website
Current NAAAEA Chapters

NAAAEA has currently nine Chapters listed below and shown on the map below.

Click below on the chapter link shown below to visit the Chapter’s website.

- California Chapter
- Capital Area Chapter (DC, VA, MD)
- Colorado Chapter
- Dallas Chapter
- Houston Chapter
- Illinois Chapter
- Michigan Chapter
- Tri-State Chapter (NY, NJ, CT)
- Wisconsin Chapter

A link to each Chapter is also provided on NAAAEA website [https://nationalaaaea.org/] under the “CHAPTERS” tab.
Interested in Forming a New NAAAEA Chapter?

If you are interested in forming a new NAAAEA Chapter, or if your existing organization wants to be a Chapter of NAAAEA, please contact us at https://nationalaaaea.org/contact-us/

Note: All NAAAEA Chapters must comply with NAAAEA By-Laws. Click here to learn more about NAAAEA By-Laws.

Follow the following steps and guidelines

1. Review the NAAAEA By-Laws. Specifically see “ARTICLE II – CHAPTERS, RULES AND REGULATIONS”. The NAAAEA bylaws can be found online https://nationalaaaea.org/ under the “ABOUT US” tab.

2. For a chapter to be formed, a group of at least 10 Arab American Engineers, Architects, or Information Technology professionals need to show interest in forming a chapter of NAAAEA (per Article II, Section 2 of the By-Laws)

3. The 10 professionals need to submit a petition to NAAAEA requesting to be recognized as a Chapter in their geographical area of the United States.

4. After NAAAEA approve the Chapter, the group needs to form a not-for-profit organization and register it in their State.

5. The group will need to apply for their own 501 (c)(3) designation from the Internal Revenue Service.

Other Action items:

1. Elect officers from the group
2. Draft your own By-Laws (the National Board can assist)
3. Contact NAAAEA to provide you with your AAAEA State Logo
4. Establish a website (the National Board can assist)
5. Conduct monthly meetings
6. Establish Student Chapters in Universities in your state

NAAAEA Resources:

1. Visit https://nationalaaaea.org/ web site and utilize the available resources
2. Contact NAAAEA for any of your needs
3. We can meet with your group or via Zoom or in person where possible to assist in your formation or to answer any questions

The Policy “How to start a Chapter” is available on the website https://nationalaaaea.org in the “Chapters” tab
Outstanding Student Award

This NAAAEA Outstanding Student Award has been developed to encourage college students, who are members of any Chapter of NAAAEA, to be active with AAAEA and other professional associations, to volunteer their time with their community activities, and to be accomplished students at their university.

ELIGIBILITY
All AAAEA student members aged 35 or younger who is recognized by colleagues for his/her outstanding achievements, are eligible to submit for this award. Nomination could be by the applicant, or by others who are familiar with the applicant involvements and accomplishments.

See https://nationalaaaea.org/ website under “AWARD” to apply for this Award or to nominate someone.
Outstanding Young Engineer Award

This NAAAEA Outstanding Young Engineer Award has been developed to encourage young AAEA members to be active with AAEA and other professional organizations, obtain professional licensed early in their career, and encourage volunteerism in community activities.

ELIGIBILITY

All AAEA members aged 40 or younger who is recognized by colleagues for his/her outstanding achievements, are eligible to submit for this award. Nomination could be by the applicant, or by others who are familiar with the applicant involvements and accomplishments.

See https://nationalaaaea.org/ website under “AWARDS” to apply for this award
Projects by NAAAEA

The NAAAEA Projects Program is developed to provide technical assistance and initiate new projects in areas throughout the world, but especially in the Middle East. This program is modeled after the Engineers Without Borders (EWB) programs. However, the NAAAEA projects will be mainly in the Middle East, since EWB does not appear that they have projects in the Middle East.

WHAT IS NEEDED FROM ALL
1. AAEA members (students or practicing engineers) are encouraged to show interest in this program. You can enter your information in the NAAAEA website (in the “PROJECTS” tab) and we will contact you once we have enough members that show interest in this program.
2. Company owners and other sponsors are encouraged to contribute funds and/or technical expertise.
3. You can contact agencies in the Middle East and encourage them to submit their project needs to NAAAEA. NAAAEA will investigate the feasibility of the project and implement, if found feasible.

TYPE OF POTENTIAL PROJECTS
1. Clean water infrastructure/treatment/purification
2. Water collection and distribution
3. Sustainable/renewable energy
4. Pedestrian bridges
5. Sustainable housing
6. Sustainable heating and cooking facilities utilizing efficient energy sources
7. Education and training
8. Sanitation infrastructure
9. Other projects, as suggested by NAAAEA community, or as requested by the needed area

See https://nationalaaaea.org/ website under “PROJECTS” to participate in this program
NAAAEA Virtual Visit to a Chapter

The NAAAEA Board have been visiting the chapters virtually.

The purpose of these visits:
1. Brief the chapter leadership on the current NAAAEA programs
2. Solicit feedback on these NAAAEA programs
3. Answer questions about NAAAEA
4. Identify your Chapter’s needs and how NAAAEA can help
5. Any other related topic your board want to discuss

The Chapter can either schedule a separate meeting for this visit or allocate 30 minutes for NAAAEA at your next monthly board meeting.

All Chapters are encouraged to contact NAAAEA to schedule a date and time for the virtual visit. NAAAEA will then arrange the meeting platform and send the Zoom invite.
Sign up to our Email List

Go to [https://nationalaaaea.org](https://nationalaaaea.org)
On the Home page, Click on “Sign up to our Email List”
Go to https://nationalaaaea.org
On the Home page, Click on “Contact Us”
Open Corner

Stress v/s Strain Graphs for Various Materials

- Linear Elastic
- Elasto Plastic
- Perfectly Plastic
- Elasto Plastic with Strain Hardening
- Ideal Rigid
- Ideal Fluid

σ = stress, ε = strain
Open Corner
How Tilted are the Planets?

- Mercury: 0°
- Venus: 177°
- Earth: 23°
- Mars: 25°
- Jupiter: 3°
- Uranus: 98°
- Saturn: 27°
- Neptune: 28°
AS I LOOK BACK ON MY LIFE, I REALIZE THAT EVERY TIME I THOUGHT I WAS BEING REJECTED FROM SOMETHING GOOD, I WAS ACTUALLY BEING RE-DIRECTED TO SOMETHING BETTER.
“Education is not the learning of facts, but the training of the mind to think!”

“The best teachers are those who show you where to look, but don’t tell you what to see”
An angel (θ) that is 1 rad is defined as the angle that has an arc length = R (as shown above)

180 degrees = (1 rad + 1 rad + 1 rad + 0.14 rad) = 3.14 rad = \(\pi\)
why $\pi = 3.14159265358979323846264338327950288419716939937510582097494$?  

$\pi$ have been calculated to 31 trillion digits!!!

\[
\pi = \frac{\text{Perimeter (circumference)}}{\text{Diameter}} = \frac{2\pi R}{2R} = 3.141592653589793238\ldots
\]

Irrational Number: Any real number that cannot be written as a ratio (p/q) of two integers

Example of irrational number is $\sqrt{7}$.

Example of irrational numbers: $\pi = 3.14115926\ldots$ because the numbers do not terminate, and these numbers are not repeating.

Example of rational number: 0.33333333 is a rational number because the pattern of 3's after the decimal repeat infinitely. This means that the number can be converted into the fraction $p/q = 1/3$. 

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**Real Numbers**

- **Rational**
  - Integers
    - Whole Numbers
      - 0
      - 431
      - 72
      - -3
      - -22
      - -562
      - 1.375
      - 3.56
    - $\frac{3}{5}$
    - $\sqrt{72}$
    - $\sqrt{\frac{8}{23}}$

- **Irrational**
  - $\sqrt{2}$
  - $\pi$
“If you are the smartest person in the room, then you are in the wrong room.”

- Confucius
Open Corner

Type of minds vs. topics discussed

A minds........ talk about ideas
B minds........ talk about events
C minds........ talk about people
D minds........ talk about the “nothings”
The Evolution of Education

1970
Calculate the surface area of the object.

1985
Calculate the surface area of the rectangle.

2000
Calculate the surface area of the rectangle, multiplying the length by the width.

2010
Choose the correct answer. What is the surface area of the rectangle?

- 4000
- 600
- 800000

2015
Choose the correct answer. What is the surface area of the rectangle?

- Michael Jackson
- Canada
- 600
- Breakfast

2018
Color the rectangle with the color you prefer.
End