

In This Issue

- A Word from the Chair
- The ASCE Grand Challenge
- Member Spotlight: Newton's 3rd Law in Action
- Structural Engineering Trivia
- Ethical or Not?
- A Member's Perspective: ASCE/SEI Structural Congress
- Business Corner

Board of Directors

Chair: Edward Thometz
Vice Chair: Phoebe Cheng
Secretary: Zhaoshuo Jian

Marketing Director:
Vladimir Calugaru

Technical Directors:
Brian Kehoe
Francisco Medina
Lachezar V. Handzhiyski
Shanshan Wang

Treasure: Mark Bird
Webmaster: Ian Prowell
Inter-Organizational Director:
Anna Teplitskaya
Outreach Director:
Amin Ghafooripour

Visit Us

seisf.org
facebook

Contact Us

info@seisf.org

Editor's Letter

Phoebe Cheng, PE, M.ASCE



Fellow SEI members, one of the greatest joy of being a structural engineer is the abundant opportunities and the necessity for lifelong learning.

In this issue, you can learn about the short-comings and pitfalls of our profession, and the search for solutions to reduce the life-cycle cost in the write up on ASCE Grand Challenge; read about the personal experience of one of our members who attended past Structural Congress – his analysis of the benefits, regrets, and joys (both expected and unexpected); and see if you agree with the thoughts from the Ethicist on providing references to someone whose conduct you had disagree with.

Additionally, you can check out the reason for setting a fixed monthly date on SEI SF events in A Word from the Chair; or get to know one of our members in Member Spotlight – their background, passion and specialty. We believe each one of us is unique and has stories that can inspire us all.

As Henry Ford said, "Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young." May you be forever young.

Happy Reading!



Where We Have Been.... Past Events

- 11/2017: SEI Local Leadership Conference, Chicago, IL
- 11/2017: Technical Tour at ConXTech
- 12/2017: Toy for Tots with SF YMF

(visit our [website](#) for details of past and current events)

Where We Are Going.... Upcoming Events



- 04/19/18: Happy Hour, Location TBD
- 05/17/18: Technical presentation by Professor Eduardo Miranda of Standford
- 06/21/18: Weekend Hike around the San Francisco Bay Area
- October 2019: 5th Orthotropic Bridge Conference, SF Bay Area, CA
- 2nd Thursday of the Month – Board of Director Meeting
- 4th Thursday of the Month – Regular SEI Events



A Word from the Chair

Edward J. Thometz, PE, M.ASCE

Third Thursday of every month! Yes, mark your Calendar “SEI SF Event” on the third Thursday of every month! Compare to the past 2 years, a big change in FY 2018 program is having a fixed typical date for the monthly chapter events. Since the inauguration of the Chapter in 2015, SEI SF has provided various presentations, technical tours, social networking, and community outreach activities. Some members expressed regrets about having to miss the events because of previous commitments. With any successful organization, constant assessment and evaluation must be continual for the organization to realize its vision for the members. Thus, to help you plan in advance, SEI SF board of directors has decided to set a “typical” day of the month for the monthly evening events, with the events being either a technical dinner presentation, social networking or a combination of the two.

The 5th Orthotropic Bridge Conference (www.5obc.org) is set on October 2-4, 2019, and the head committee is deep into planning. Various sub-committees (scientific, sponsorship, marketing, outreach, and scheduling to name a few) are developing and are in need of our membership participation in order to continue the success that this conference has historically achieved. If you would like to get involved and or have questions regarding this conference, please contact us at info@5obc.org.

We are half way through our fiscal year, which means that officer elections are not far off. I encourage you to give some thought on becoming a board member. Many of our current officers’ terms will end this year, and we will need those positions filled so we can continue to provide meaningful programs to our members. In fact, at present, there are currently to vacant positions; Historian and Webmaster. If you are interested in either of those, contact us and join the board! For a complete list of officers and their descriptions, please visit www.seisf.org.

SEI SF Out and About....



Visiting fabrication plants



Checking out full-scale tests



Learning from industry experts

The ASCE Grand Challenge

Brian Kehoe, PE, SE, F.ASCE

In 2015, ASCE issued a Grand Challenge to the civil engineering community. The goal of the Grand Challenge is to produce structures that will be able to reduce life-cycle costs for infrastructure by 50 percent. The intent is to reach that goal by the year 2025. Achieving such a goal will require creative thinking and changes to the way infrastructure projects are designed and built.

To address this goal, ASCE has identified four focus areas: resilience, innovation, life cycle cost analysis, and performance-based standards. Each of these focus areas addresses concepts that need improvement and are discussed below. For a comprehensive discussion of the Grand Challenge and focus areas, go to the special ASCE web site at <http://collaborate.asce.org/ascegrandchallenge>.

Resilience

The key factor of resilience is improving the ability of a community to function following a disaster. Resilience is a very broad concept and considers factors that are beyond the influence of civil and structural engineering, such as maintaining electric power and other utilities. While planning and functioning of utilities may not be in the expertise of structural engineers, these issues require some support by structural engineers to ensure that the structures are functioning during and following a disaster. While we, particularly in California, may focus on disasters such as earthquakes, resilience should be viewed as much broader. Floods, fire, and man-made events are some of the other disasters that must be accounted for in resilient designs.

Life Cycle Cost Analysis

Historically, our country has focused on initial costs of a building or other structure, often at the detriment to the long-term costs. These long-term costs include operation, maintenance, and ultimate disposal. This has been more of a concern for infrastructure projects, such as bridges and utility structures that are built and operated by a single entity, than for typical buildings that may have multiple owners over their lifespan. For some infrastructure projects, tight budgets and value engineering may lead to designs that reduce up-front costs while neglecting the impact on long-term costs. As engineers, we need to educate our clients to look at the long-term effects of designs on maintenance costs so that we can achieve projects that will minimize the future expenditures for operating the building or other structure.

Innovation

Engineers are naturally interested in coming up with new and different ways of doing things. Thus, innovation would seem to be an area that is commonplace within the structural engineering profession. Unfortunately, there are many barriers to innovation within our profession. With tight schedules and tight budgets, there is a tendency for structural engineers to reuse proven designs and details. They worked in the past so why not use them again? Some typical details may also have extra levels of conservatism so that they can be applied in a variety of conditions. While there are valid reasons for conservatism and reuse of details, engineers can become complacent and fail to take a fresh look at issues. Reexamining typical designs and detailing may lead to improvements and innovations. To promote this aspect of the Grand Challenge, ASCE has developed a yearly Innovation Contest to encourage new ideas that will improve our infrastructure.

Performance-Based Standards

The final focus area of the Grand Challenge is performance-based standards. While structural engineers on the west coast are familiar with performance-based seismic design guidelines, the performance-based standards that are being promoted by ASCE go beyond seismic design. Performance-based standards are

currently being used for designing bridges to achieve longer life spans and for the design of buildings for fire protection. Use of performance-based standards is a way to innovate and revise the way buildings and other structures are designed. However, there are many drawbacks to the use of performance-based standards, and prescriptive standards may still be appropriate for a vast majority of structures. The main goal of performance-based standards is for education of the client so that engineer can understand what performance the client expects and then design the structure to try to achieve that performance.

Concluding Remarks

ASCE has issued a challenge to civil and structural engineers to re-examine the way infrastructure is designed, built, and maintained so that life cycle costs can be minimized. The goal is quite ambitious - to reduce life cycle costs by 50% by 2025. There are no quick solutions to this issue and it will require some fundamental shifts in the ways that engineers have been practicing.

Member Spotlight: Newton's 3rd Law in Action

Anna Vongsing, PE, M.ASCE



Dr. Amin Ghafooripour

Source: <http://parspadir.com>

Anna Vongsing is a Design Engineer for FTF Engineering in San Francisco. Active in ASCE, she is the Inter-Organizational Director for SEI of SF/Bay Area.



Anna

Dr. Amin Ghafooripour is the founder of Padir Consulting Engineers, adjunct prof. at Santa Clara University, and is one of the newest board members of SEI SF. He has had a lengthy and broad career in structural engineering as is evidenced by looking his extensive list of accomplishments listed in his profile on Linked-In.

Over the years he has participated in academia and professional endeavors, gathered 24 certifications varying from Shark Diving Certification to Professional Engineer License,

has been published over dozens of times, and even has 4 patents! During his career he has traveled to 23 different countries (so far) and even won 7 awards.

Anna: What was your favorite subject to study in school?

Amin: I loved and still like to study the dynamics and vibrations. So, I remember, I enjoyed the Dynamic of structures and later Random Vibration courses. They inspired me to connect many facts in the worlds even with our daily life and my belief system.

Anna: What sort of extracurricular activities do you participate in?

Amin: I love challenges: First I got a Diving license, and later a certification for the Shark Diving. Then, because I like driving, I got a certificate for the Desert Dune Driver License. And now I am working on my FAA pilot certificate, which I will use to fly drones for inspection of projects, especially for roofs and top of chimneys in small residential building. I have [also] started to use the robot to inspect the crawlspace successfully.

"We chose to go to the moon not because of it is easy, but because it is hard."

Anna: What was your best job?

Amin: I was the assistant professor at Heriot-Watt University (UK). It was one of the best jobs that I had.

Anna: What was your worst job?

Amin: I always worked in the area of my expertise and profession, and wouldn't say I have any worst job. When I start a project, I never think about it as a job, and they usually have all turned into hobbies.

Anna: In addition to being paid, how else has your career created value in your life?

Amin: I believe we have to be creative, help people, and create ethical values in our job environment. In fact, money is the last thing that is important since it will come either way if we work correctly. We may work adequately and professionally, but [still] not be able to impact our community and society.

I think when other people [view] engineering community they believe that we are classified among the smartest people. So, with this influence, we must give ethical values, and of course, we will receive more. It is the law of the universe, written in the scripture, and it Newton's third law!

Anna: Who was the biggest influence in your career?

Amin: I had several professors that influenced me. My father and mother showed me the way of life, and they raised me with my values. From the society, the professional character of the famous scientists and inventors such as Tesla, Edison, and Steve Jobs influenced me. In the social life, I've been influenced by the figures such as Dr. King, Pastor Osteen, and the famous word from President Kennedy who said: "We chose to go to the moon not because of it is easy, but because it is hard."

Anna: What is your goal as a parent?

Amin: As a parent, my goal is to create a platform for my son to be successful in his life and job in the future no matter of the area that he will continue. I tried to teach him that I will not give you a "fish," but you need to learn "how to fish". Then you will be a good problem solver.

Anna: What does the word "family" mean to you?

Amin: Love. Love [is the] core and the base of our life. A lovely and warm relation inside a family is the platform for everything in life.

*"... immigration is like a resurrection!
...you have to start from scratch."*

Anna: What accomplishment are you most proud of?

Amin: I immigrated two times. I think immigration is like a resurrection! You will die in one country and resurrect in another country. You have experience from the past, but it may not work for the new environment. So, technically, you are an adult since you are; you are like a child [in] that you have to start from scratch. I think I was very successful and confident to pass all these changes quickly and embrace the new home and being successful in it. Today and in less than few years I am the CEO of my company, and I hired people as a job creator.

Anna: What do you like to do in your spare time?

Amin: Usually, I like to travel and explore. I like dancing. Of course, I love watching movies.

Anna: What are the main lessons you've learned in life?

Amin: Not to judge; think globally, act locally to influence the community; dream big and believe that nothing is happening by accident. In fact, we may see random processes in our life since we see a small window of a process. We try to expand a theory based on that observation, but in fact, it is not random/accidental since in most cases we may be able to find the rule for that process. So, seeing a small window of something does not allow me to judge. That is why I think, I shouldn't say anything and judge before doing further studies.

Wait, Wait, Don't Google Me... Structural Engineering Trivia

Mark Bird, PE, M.ASCE



1. What is the difference in height of the CN Tower between a hot day and a cold day?
2. What did the Romans use to provide additional water to their largest cities?
3. What is an example of an anisotropic material?
4. How much longer is the Akashi Kaikyo Bridge as a result of the 1995 Kobe earthquake?
5. When was the oldest existing bridge built?
6. What is the third busiest canal in the world?
7. What building has a concrete dome spanning 43 m?
8. Why don't railways use suspension bridges?

(Submit your answers to trivia@seisf.org. The 3rd email with the most correct answers shall receive a certificate to attend the next SEI SF event free. Answers to the trivia are to be revealed in the next issue of the newsletter.)

Ethical or Not?

Dear Ethicist, Barry and I were colleagues. He joined our firm right out of school and worked here for a couple of years before taking a job at a competing firm while still an EIT. Later, while working on a large project in collaboration with Barry's new firm, I discovered that Barry had fudged some numbers to get a result that was in direct conflict with advice that I had given the client. This did not result in violation of code. It was done to back up a claim by the client about the performance of their product. When confronted, Barry admitted that he did it to please the boss.



Fast forward a few months: I received a request from Barry for a reference for his P.E. license. Ah ha! Paybacks are hell! But, I hesitated.... I will need references in the future, too. The engineering community is small.... After giving it some thought, I gave Barry a satisfactory reference. But this has been bothering me. My motivation was purely selfish. I did not want to burn a bridge. Did I act unethically? Did I have a responsibility to blow the whistle on Barry? – Larry, the Troubled Engineer

~~~~~  
**??? to be supplied...**

(To submit a query, send the email to [editor@seisf.org](mailto:editor@seisf.org).)

---

## Member's Perspective

Brian Kehoe, PE, SE, F.ASCE

### ASCE/SEI Structures Congress



In April, the Structural Engineering Institute of ASCE will be holding its annual Structures Congress in Fort Worth, Texas. I have been fortunate enough to attend several Structures Congresses in the past and will be attending this year as well. It is the largest annual gathering of Structural Engineers in the country. I highly recommend anyone with interest in structural engineering to attend.

I have never ceased to be amazed at the size of these events. The technical programs usually run about ten to twelve concurrent technical sessions with topics ranging from buildings, bridges, non-building structures, building codes, and a variety of sessions on business practices. (You can check it out <http://www.structurescongress.org/>) Sure, you can go to an ACI or AISC conference, but those conferences only present information on a single construction material. How many engineers only design with one material? At a Structures Congress, you can attend a session on steel bridges followed by a session on timber design. My main complaint is that with so many concurrent sessions, it is difficult to be able to hear all of the talks that I would like to attend.

Another advantage of attending a Structures Congress is that the speakers and attendees range from students to practitioners, to academics. This provides a good mix of practical knowledge and cutting edge research information, truly something for anyone interested in structural engineering.

For those of us who need professional development hours for PE license renewals, what better opportunity than to get a significant portion of the state's requirement at one time? At last year's Structures Congress, I received 14.5 PDH hours.

Last, but certainly not least, is the opportunity to socialize with Structural Engineers from around the country. There are plenty of occasions during the Structures Congress for meeting up with old friends or meeting new people. Last year, I was lucky enough to run into one of my former undergraduate professors.

If you are of the mistaken belief that Structural Engineers are boring, you can see your friends and colleagues dancing (and maybe even doing karaoke) at the annual reception hosted by Computers and Structures, Inc.

(Submit your perspectives inspired by your experience as a structural engineer to the Member's Perspective column. There are no restrictions or strict guidelines to follow. Be as open and creative as you wish. Let your hair down and don't worry about your technical writing skills for a moment. Unleash your creative potential and share your favorite project-related funny and not so funny stories, philosophical thoughts on the role of structural engineers in our society, or your thoughts about the future of our profession. These are just a few ideas. We know that you have something to share and are certain that other members will appreciate reading them. Send your pieces to [editor@seisf.org](mailto:editor@seisf.org). We look forward to receiving your stories!)

---

## Business Corner

Please contact [info@seisf.org](mailto:info@seisf.org) to sponsor and support the SEI SF Chapter, or to advertise on the newsletter, Engineer of Record.

Send all suggestions and comments to [editor@seisf.org](mailto:editor@seisf.org).