



# STRUCTURAL ENGINEERS ASSOCIATION OF ARIZONA

# NEWSLETTER

[www.seaoa.org](http://www.seaoa.org)

APRIL – JUNE 2023

## State President's Message

Andy DiLeo, PE, SE  
SEAOA State President



We're only a few months away from our 2023 annual convention! We will be returning to a familiar location at the Scottsdale Paradise Valley Doubletree from June 15<sup>th</sup> to 17<sup>th</sup>. We're excited to have Dr. SK Gosh as our headline speaker, presenting two different topics, one Thursday and one Friday. In order to maximize the available options and cover a range of topics, there will be a Thursday morning session and multiple presentation tracks on Thursday and Friday.

The convention format and schedule will be similar to previous years. Our Thursday evening exhibit hall and cocktail hour is always a fun social event. It will include representatives from many of the exhibitors you're familiar with and some new ones. Our awards lunch will take place on Friday, and there will be a chance to win raffle prizes Friday afternoon. The ethics seminar will take place on Saturday morning and requires a separate registration.

I'm looking forward to getting together with everyone and enjoying this convention. Make sure to register for the convention before May 1st to get the early registration rates.

As always, please feel free to reach out to [info@SEAoA.org](mailto:info@SEAoA.org) with any SEAoA-related comments or questions.

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### TUCSON CHAPTER MEETING

April 20, 2023  
5:00pm

[Structural Steel Braces, Frames, and Connections](#)



### CONTACT US

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### CENTRAL CHAPTER MEETING

April 18, 2023  
5:30pm

[Mayo Clinic Expansion](#)

## Central Chapter Chairperson's Message

Mark Forman, P.E., S.E.  
Central Chapter Chair



Spring is upon us. It's heating up and feels like summer. I hope you all had a nice spring break and were able to take some time off with family. It has been an honor to serve as the Central Chapter Chairman for the Spring of 2023, and I am looking forward to the rest of the year.

The central chapter meetings this winter and spring have been very interesting and well-attended. February's meeting was on the manufacturing of structural steel shapes. It was an excellent presentation by a metallurgist from Nucor Beam Group, Yamato Steel, with an actual video of the process. The Future Cities kids joined us for dinner at this meeting and presented their project. In March, Adam Boucher of Hilti presented Concrete to

Concrete Connections and the effects of fire on Post-Installed rebar. The presentation also included a demonstration.

April's meeting is a presentation on Mayo Clinic Expansion, presented by the structural team of MBJ. The topic will discuss structural design and the construction process starting with "big room" planning. This meeting will be held in the evening at the Hilton Airport. This venue has been a great host for our events.

May's meeting is a joint meeting with ACI (American Concrete Institute). It will be a lunch meeting at the Majestic Theater in Tempe. The presenter is Dave Flax from Euclid. You can bet it will be an interesting discussion on specialty concrete and admixtures.

I look forward to serving you has the central chapter chairman through the end of the year, and I hope to see many of you attending our future meetings.

**THE RIGHT BRAIN**  
© Brent Wright [rightbrain.wrightengineers.com](http://rightbrain.wrightengineers.com)



*A good coach understands that mastery of any skill requires much effort and perseverance, and that positive reinforcement encourages the desired improvement. But the benefits of being positive go far beyond motivating learners. Positive thinking leads to better mental and physical health, increased resilience, better coping skills, and longer life span.*

*Benjamin Franklin, who lived to be 84 at a time when the average life expectancy of his peers was around 35, believed in the power of positive thinking combined with hard work and diligence. "I haven't failed," he said of his repeated attempts to invent an electric light bulb. "I've just found 10,000 ways that won't work!"*

*This Right Brain cartoon is a contribution from Brent Wright of Wright Engineers, an SEAOA supporting firm. If you would like to contribute an original cartoon, please email it to [info@seaoa.org](mailto:info@seaoa.org)*

## Tucson Chapter President's Message

Steven Hess, PE, S.E.  
Tucson Chapter President



This year I celebrate 50 years since graduating from the University of Arizona with a BSCE, Class of 1973. A couple of my graduating classmates were Sal Caccavale and Dan Neff. On my first job at Brown and Root, we had about 12 engineers working on a Caustic Soda Plant (bleach). We

wrote down our calculations, pulled up the slide rule, multiplied the numbers, and added the results by hand. It was important to estimate our answers to verify the decimal placement. All our calcs were then passed to another engineer who back-checked our numbers. The HP 35 calculator had already come out on the market for about a year at that time, costing \$395. The monthly salary at that time was about \$900/month (\$5.20/hr). At about that time, Texas Instruments came out with their first calculator; shortly after, other hand calculators came out. By the start of 1974, slide rules were pretty much retired from the engineer's toolbox.

Now we have canned programs that can run most of our calculations. A beam calculation which may have been a  $\frac{1}{2}$  page calc in the past, can run a couple of pages of computer output with hundreds of #s. Where will Structural Engineering calculations/design be in 50 years? We have talk of AI doing many more tasks in the workplace in the future. What will the Structural Engineer be doing in 20 years, let alone 50 years? There is some talk that in the future, there will be machines that will literally read your mind, which may then just run the calculations on a machine. How advanced would the drafting (if they even call it that) be? It would seem everything would be in 3D. I remember writing simple structural software in BASIC computer code. Can you imagine the software of the future?

In my July 2022 message, I wrote about aspects of Truth. What appears to be Truth for the masses is different for the professionals, from the administrators and politicians, for the planners, and for the people that run the world. Remember this as you go through your career.

## 2023 Excellence in Structural Engineering Awards: Call for Entries

The SEAOA is once again looking for the best and the brightest projects from our members so that we may showcase them at our Annual Convention. There is no fee to enter and projects are not limited to those in Arizona, so be proud and show us what you got!

Truly outstanding projects may also get forwarded on to compete for the National Excellence awards with entries from other SEA organizations across the country.

The official awards announcement, entry rules, and dates will be emailed and posted later this month. SEAOA looks forward to your continued interest and support of the awards program. Please contact the Awards Committee Chair, Sal Caccavale ([seccbc@cox.net](mailto:seccbc@cox.net)) for questions.

## E-Week Day at the Mall 2023

Allan Ortega Gutiérrez, PE  
M3 Engineering

Engineer's Week in February brings multiple events that help us celebrate all the goodness engineering brings to our society. There are multiple activities that celebrate the best in our profession and promote events that strengthen every fiber of engineering on all levels and groups that represent it.

One of these events is *E-Week Day at the Mall*, an event in which different engineering organizations spanning from Geotechnical, Civil, Electrical, Mechanical, and Structural Engineering offer various activities that spark the creativity of young minds and share the many benefits that engineering brings to our society with kids and their families.



Janelle Perry and Touhid Ahmed Setting up the SEAOA Table

SEAOA participated again this year, sharing two fun activities with all participants that started coming very early. Young attendees and young at heart came to our booth to compete in creating new structures,

either using spaghetti and marshmallows or straws and paper clips. This year, the event occurred on Saturday, February 18th, from 10:30 am to 3:00 pm at the Park Place Mall.



Natalie and Jacob Reed Creating Spaghetti and Marshmallow Structures (They are children of Bryan Reed with SAEKO, a multi-service geotechnical and environmental engineering firm in Arizona)

I take the opportunity to thank Jennifer Patronski (and her amazing family), Janelle Perry, Touhid Ahmed, Mike Lu, and Kevin Frugoli for their energy and time volunteering during this event.

While writing these lines, I reflect on our profession's beauty, a profession of challenges and silent rewards. A profession that every now and then allows us to share those hidden gems. I hope to see you participate with us next year and share the joy of being an engineer with the rest of our society!

## 2023 Future Cities Competition

Richard Dahlmann, PE  
Caruso, Turley, Scott Structural Engineers  
[RDahlmann@ctsaz.com](mailto:RDahlmann@ctsaz.com)

The Future City Competition Arizona regional finals were held at the end of February. This competition for 6th through 8th-grade students is a great introduction to engineering. Seventy-one teams from all across Arizona competed in this year's regional finals. This was the first time the competition was held live since the pandemic started. It was great talking with the students in person again and letting them know what structural engineers really do.

The students have been working diligently on their cities since September. Their deliverables included:

- An essay describing their city
- A physical scale model
- A 7-minute presentation about their city

Many engineering societies give out awards to teams that put an emphasis on their discipline. The SEAOA has been participating in this for the last 14 years. This is a great opportunity to educate people as to the importance of structural engineering.

A special Thank You to: Bob Stimson, Ryan Wright, Kelly Robertson, and Matthew Schmitt for being SEAOA judges for this year's competition. In addition, Kunjal Chhaya and Rosa Dooley helped evaluate the essays. Everyone's help is very much appreciated!

The SEAOA award recipient this year was: **Plan Prospect: City of Green Living from S'more Learning.**

The competition theme this year was climate change. The future city that our winning team developed was located in the city of Prospect, Alaska (formerly Juneau). Below is an excerpt from their essay:

*Our structures are built to withstand hurricane-force winds, flooding, and earthquakes. To make our homes flood resistant, we have installed buoyant walling in the basements. For earthquake resistance, we have installed base isolators so that the house moves with the seismic event. Our structures are made from state-of-the-art materials that protect our environment. BEARS (Building Economical and Resilient Structures) Construction revolutionized the production of concrete and steel of yesterday and have created a lower cost, better strength, carbon negative process for all our materials manufacturers. Our wood in structures is sustainably resourced. BEARS worked closely with forest management teams to ensure that we protect our forest and the process does not add to the risk of landslides or flooding but continues to grow with trees that absorb CO<sub>2</sub>.*

Congratulations Prospect!

## Need a Structural Engineer?

The SEAOA created a web page for members to add their name to a list of structural engineers who are available to consult on small residential and commercial projects. This list is very helpful for building safety staff in all jurisdictions. When an applicant receives a plan review comment requiring engineering for something like a new lintel in an existing wall, the first question the applicant asks is, "Can you tell me who to use?". Plan review staff are not allowed to make these referrals for several reasons. They can however refer to the website. Please contact Sarah Betts ([info@seaoa.org](mailto:info@seaoa.org)) if you are interested in adding your name to this list.

## 2022 SEAOA Excellence in Structural Engineering

### Winner: Schneider Structural Engineers

**Other Structures: Phoenix-Mesa Gateway Control Tower ATC Steel Erection, Mesa, AZ**

Ron Schneider, PE, SE  
Project Manager, Schneider Structural Engineers



Phoenix-Mesa Gateway Airport, serving as one of the Valley's growing commercial airports, is located in the East Valley. It's long and storied history started back in 1941 when the Air Force broke ground on Williams Air Force Base.

After re-opening as a commercial airport in March 1994, it was officially re-named Phoenix-Mesa Gateway Airport in 2007. It currently supports five commercial airlines, has three runways and contributes approximately \$1.8 billion annually to the Arizona economy.

SSE was contracted by JB Steel, the steel fabricator and erector, as their rigging/erection engineer. SSE assisted with the steel structure to ensure that it could be lifted in two complete assemblies, instead of being built piece-by-piece on top of the precast structure, standing 122' tall. This structure was assembled on the ground, lifted in two parts and pieced together as part of the lifting procedure. The specialized design of cables and custom designed lifting fixture attached to the crane was part of our scope as well. The structure was also re-designed to be suspended instead of being supported from the bottom. Due to the weight of the two lifts, this was classified as a critical lift, requiring engineering oversight/design.

The structure itself consists of three levels, plus the roof. The steel frame is a special moment resisting frame. The floors are concrete over steel deck. The steel deck was part of the lifts, which gave the structure additional rigidity, but the concrete was added after the structure was

lifted into place. The first lift's weight was 210 kips and the second lift was 114 kips. The rigging device was designed for a working load of 220 kips. Both structures were constructed on temporary foundations with anchor bolts matching the cast-in-place anchors on top of the precast tower. Our biggest concern was that the structure would deform and not line up with the cast-in-place anchor bolts on the top of the tower.



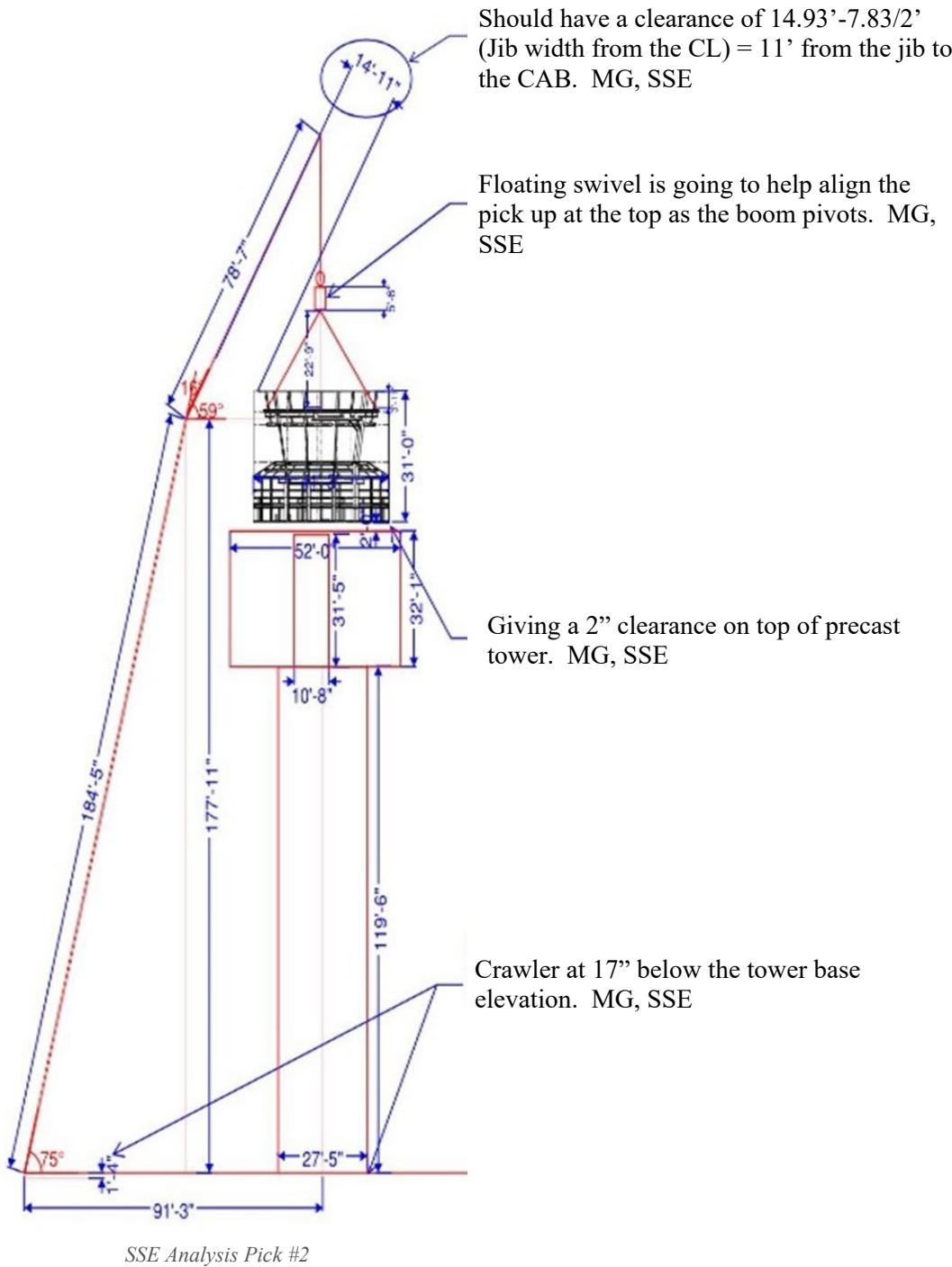
*First Pick*



*Second Pick*

Since the structure was going to be loaded in reverse, lifted from the top verses supported from below, it required us to check all the structural members and their connections to make sure that the structure would not be damaged during the lifting process or that pieces would fall off. As often occurs during construction, there were a

few unaccounted for and unforeseen situations which were worked through during the construction process, but the lift itself was a success, as was the overall project.





# SEAoA 57th Anniversary Convention and Conference

June 15th - 17th, 2023

## Attendee Registration Information

**REGISTER ONLINE at <http://www.seaoa.org>**

DOUBLETREE HILTON - PARADISE VALLEY 5401 N. SCOTTSDALE RD, SCOTTSDALE, AZ PHONE: (480) 947-5400

- Excellent Variety of Structural Engineering Seminars with 13 PDH Offered
- Exhibitor Trade Show and Welcome Reception
- SEAoA Excellence Awards
- Raffle Prizes for Attendees
- Commemorative Gift
- Relaxing Resort Atmosphere

### **SEMINAR TOPICS (13 PROFESSIONAL DEVELOPMENT HOURS)**

#### **An Overview of Changes in the 2021 IBC and ASCE**

**7-22-** Dr. SK Ghosh, Ph.D., P.E., S.E. (S.K. Ghosh Associates, LLC)

#### **Seismic Events in Turkey-**

Dr. Kit Miyamoto, Ph.D., P.E., S.E. (Miyamoto Global Disaster Relief)

#### **Construction Accident Cases-**

Bartek Szymanski (Platta Law Firm)

#### **Masonry Shear Walls and Diaphragm Design -**

(Sam Rubenzer, P.E., S.E., FORSE Consulting - Arizona Masonry Council)

#### **Navigating AISC 360-16: HSS Connections Design**

#### **Examples and HSS Moment Connections -**

Beth Suminski , P.E., S.E. (Steel Tube Institute)

#### **CLT Shear Wall and Diaphragm Design -**

Mike Romanowski (WoodWorks)

#### **FRP Collector Strengthening in a California Hospital -**

Erik Moore, S.E. (Degenkolb Engineers)

#### **A Critique of the NIST World Trade Center Reports and the Progressive Collapse Theory -** Seth McVey, P.E. (AECOM)

#### **Roles and Responsibilities for Success in Cold Formed Steel Framing -**

Jeff Klaiman, P.E. (Adtek Engineers)

#### **UC Berkeley's New BioSciences Hub**

Masume Dana, S.E. (Forell Elsesser)

#### **Penn Station's East End Gateway**

Alexander Jordan, P.E. (Skidmore, Owings & Merrill)





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2023 REGISTRATION RATES				CONVENTION AND CONFERENCE SCHEDULE		
Thursday and Friday Sessions  (12 PDHs)	Registration Period	Member Rates	Non-Member Rates	<b>Thursday June 15th</b> <b>8:30 AM - 10:00 AM</b> Masonry Shear Walls and Diaphragms	<b>Friday June 16th</b> <b>7:30 AM - 8:30 AM</b> Breakfast and Seismic Events in Turkey	<b>Saturday Ethics Seminar</b> <b>8 AM - 12 PM</b> <b>Robin Kemper</b> <i>Separate Registration Required (4.0 PDH)</i>
	Early Registration March 13 - May 1	\$345	\$465	<b>10:30-12:00PM</b> Critique of NIST WTC and Progressive Collapse <b>OR</b> Success in Cold Formed Steel Framing	<b>8:30 AM - 10:00 AM</b> Changes in ASCE 7-22	
	Standard Registration May 2 - June 1	\$395	\$530	<b>12:00-1:15</b> - Lunch	<b>10:30 AM - 12:00 PM</b> Changes in ASCE 7-22	
	LATE/Walk-In Registration After June 1		\$575	<b>1:30 PM</b> Convention Opening Remarks	<b>12:00 PM - 1:30PM</b> Lunch Presentation SEAoA Excellence Awards	
	Students VALID ID REQUIRED March 13 - June 14	\$25	Fee waived if sponsored by Chapter	<b>1:30 PM - 3:00 PM</b> Construction Accident Cases <b>OR</b> Navigating AISC 360-16 HSS Connections	<b>1:30 PM - 3:00 PM</b> UC Berkeley's New BioSciences Hub <b>OR</b> CLT Shear Wall and Diaphragm Design	<b>Join SEAoA now for member rates and membership through July 2023</b> Email us directly for these offers at <a href="mailto:info@seaoa.org">info@seaoa.org</a>
	Companion Registration Anytime		\$200	<b>3:30 - 5:00 PM</b> Changes in the IBC 2021	<b>3:00 - 3:30 PM</b> Attendee Raffle	
Saturday Session  (4.0 PDHs)	Standard Registration	\$90	\$110		<b>3:30 - 5:00 PM</b> FRP Collector Strengthening in a California Hospital <b>OR</b> Penn Station's East End Gateway	
	LATE/Walk-In Registration <i>Separate Registration on Website - After June 1</i>	\$120	\$140	<b>5:00 PM - 7:30 PM</b> Exhibitor Trade Show and Cocktail Hour		

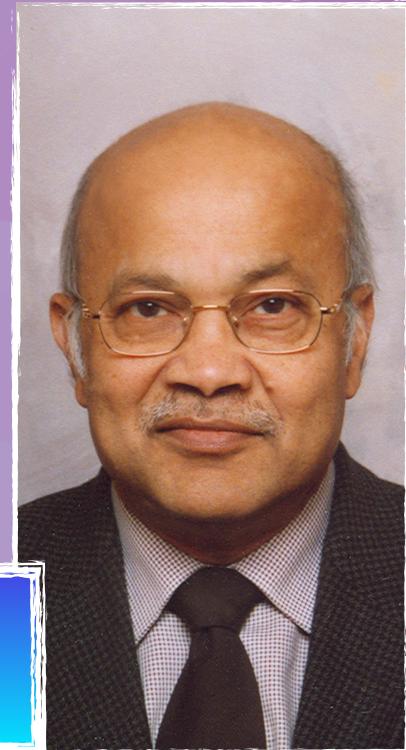
**\$129 Hotel Rate** (Single & Double Occupancy)  
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CDTSEA)

BOOK EARLY Rates are only available through May 31

# SEAOA 57th Anniversary Convention and Conference

**June 15th - 17th, 2023**



## AN OVERVIEW OF CHANGES IN IBC 2021 & ASCE 7-22

**Dr. S.K. Ghosh, PE, SE**

### **Keynote Presentation**

Don't miss this year's intriguing keynote presentation for the SEAOA Convention and Conference on an Overview of Changes in the IBC 2021 and ASCE 7-22. The SEAOA will once again welcome the great Dr. S.K. Ghosh to present on the significant changes in the codes and answer any questions attendees have. Dr. Ghosh is a wealth of knowledge and it's an honor to have him join our 2023 conference! Part 1: An Overview of Changes from IBC 2018 to IBC 2021 will be held Thursday afternoon, while Part 2: An Overview of Changes from ASCE 7-16 to ASCE 7-22 will be held Friday morning. This special presentation is included in your registration for the convention.

**REGISTER ONLINE: [HTTP://WWW.SEAOA.ORG](http://www.seaoa.org)**



# SATURDAY ETHICS SEMINAR 4.0 PDF CREDITS **2023**

## 57th Anniversary SEAOA Convention and Conference

**DATE: JUNE 17<sup>TH</sup>**  
**TIME: 8AM - 12PM**  
**7:30 AM BREAKFAST**

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**DOUBLETREE HILTON  
PARADISE VALLEY -  
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