



State President's Message

Andy DiLeo, PE, SE
SEAoA State President



Hello SEAoA,

I hope you're all well and keeping busy. As we begin to approach the end of 2021 SEAoA has become more active. The chapters have started back up with a mix of in person and virtual meetings. The Code Committee and the Legislative Committee have both recently had meetings. The Convention Committee will be meeting later this month as well.

The State Board elections have been delayed but will occur this month.

SEAoA is here to promote the field of Structural Engineering and to benefit our members. However, we need your help. Please consider joining one of our committees or becoming active with your Chapter Board or the State Board.

In This Issue

- ▶ [State President's Message](#)
- ▶ [Central Chapter Chairperson's Message](#)
- ▶ [City of Goodyear Seeks Volunteer](#)
- ▶ [Tucson Chapter President's Message](#)
- ▶ [Request for Newsletter Articles](#)
- ▶ [Honorary Membership](#)
- ▶ [Right Brain Cartoon](#)
- ▶ [In Memoriam, Dr. Harry Lundgren](#)
- ▶ [Code Committee Meeting Minutes](#)
- ▶ [2021 SEAoA Excellence Award Program Featured Project Article](#)
- ▶ [Chapter Meeting Flyer](#)



TUCSON CHAPTER MEETING

October 27, 2021
11AM

[ACI Joint Meeting: ACI Repair Code](#)



CONTACT US

PO Box 645
Tempe, AZ 85280
602-492-6732
www.seaoa.org
info@seaoa.org



CENTRAL CHAPTER MEETING

October 26, 2021
5:30PM

[ACI Joint Meeting: ACI Repair Code](#)

Central Chapter Chairperson's Message

David Grapsas, P.E., S.E.
Central Chapter Chair



We are now entering the last quarter of the year. I hope everyone has continued to stay safe and healthy.

Fred Nelson gave a great presentation on the Champlain Towers South Condo collapse in Florida as he was

there for 8 days to assist with structural inspections during the search and rescue efforts. For those who missed the meeting, the link for the recording can be found on the AZSCE website: <http://www.azsce.org/groups/branches/phoenix-branch/phoenix-branch-webinars/>.

We are currently planning an in-person meeting for Tuesday, October 26 with ACI which will be focused on the ACI 562-16 "Code Requirements of Existing Concrete Structures."

The Central Chapter is continuing to monitor the ongoing situations and the ever-changing events and executive orders. We are currently planning for in-person/hybrid meetings going forward.

We want volunteers! Anyone interested in participating in SEAOA's Code Committee and Legislature Committee or in receiving additional information regarding current issues, please reach out to me (jmpatronski@scice.com), Paul Scott, Allen Ortega, Andy Dileo, or email info@seaoa.org

Please check the SEAOA website for updates and calendar of events.

City of Goodyear Seeks Structural Engineer Volunteer for Appeals Board

The City of Goodyear is BOOMING and we need a structural engineer to fill an opening on the Fire/Building/Code/Enforcement Appeals Board for a Structural Expert. Come join our team of volunteers (Fire, Mechanical, Electrical and Architectural) and help us be prepared to address appeals with the benefit of your structural expertise.

Applications are good for one year, and can be used to fill vacancies as they occur. As you complete the application, please be sure to check any areas of interest to be considered for upcoming vacancies.

Applications can be completed here: <https://www.goodyearaz.gov/government/online-forms/city-clerk-forms/boards-commissions-application-form>

For questions please contact: Randy Westacott, Chief Building Official, City of Goodyear, 623-882-7934

Tucson Chapter President's Message

Jennifer McMahon Patronski, PE, SE
Tucson Chapter President



Happy Fall SEAOA Members! (I feel like I just wrote that same intro for summer...this year is moving fast!)

It is FALL. Thank you to the membership for their patience in the transition period from virtual to hybrid / in-person. The Tucson Chapter has not yet stepped out of virtual meetings, and the Fall programming continues to develop. Continued thanks to Central Chapter for coordinating monthly presentations. This month we will be hosting two events:

1. EleMasonry on October 5, presented virtually by NCMA
2. ACI 562 (Concrete Repair) presented by ACI AZ on October 26 in Phoenix and October 27 in Tucson. The meeting will be hybrid for both locations. Location TBD.

Keep your eyes and ears open for more information regarding the ACI 562, special inspections for concrete and repair of concrete, and associated guidelines from ICRI. Jason Savage, Euclid Chemical Representative and ACI AZ Chapter President, have reached out to SEAOA leadership to encourage education of membership on the available concrete repair resources, concrete and concrete repair special inspection, and ultimately to garner support from SEAOA for the adoption of the ACI 562 by the IBC or by local jurisdiction amendment.

Later this month, the Legislature Committee will be meeting to discuss the current status and any possible changes for Arizona legislation SB1274 and SB2062. Additional information will be shared as it becomes available.

We want volunteers! Anyone interested in participating in SEAOA's Code Committee and Legislature Committee or in receiving additional information regarding current issues, please reach out to me (jmpatronski@scice.com), Paul Scott, Allen Ortega, Andy Dileo, or email info@seaoa.org

REQUEST FOR NEWSLETTER ARTICLES

The SEAOA Newsletter committee always appreciates input from the membership about articles and information that you'd like to see in upcoming newsletters. The newsletter is an excellent place for the SEAOA membership to share opinions, ideas and information with the rest of the association. Also, anyone who could volunteer a little time every quarter to help publish the newsletter is most welcome. One easy way to help would be to "proof" the newsletter before it's published. Please contact Sal Caccavale (seccbc@cox.net) or Mark Sipes (mark_sipes@tempe.gov) if you have any articles that you'd like to submit, if there are any topics you'd like to see in future SEAOA Newsletters or if you'd like to help with publishing the newsletter.



Honorary Membership

Mark Sipes, PE, SE

The Structural Engineers Association of Arizona was established in 1955 with many visions in mind, one of which is to recognize those members who contribute outstanding service to the SEAOA. Our bylaws allow the Board of Directors to award an Honorary Membership to such persons. Section III.7 reads:

7. An Honorary Membership may be awarded by the Board of Directors to any person who is a person of acknowledged eminence in some branch of engineering or the science related thereto or a person who has been a member in good standing of this Association for 20 years or more and who, in the opinion of the Board of Directors has contributed outstanding service to the Association. An Honorary Member will have the voting rights of a Full Member provided they had previously qualified to be

a Full Member of the Association and would receive a complimentary annual membership to the Association and would receive member rates for all Association sponsored events. Nomination of individuals for consideration may be by individual members or upon nomination by a Chapter.

You, as an individual, can nominate an individual to be recognized for their contributions to the SEAOA and who has affected the membership and inspired others to volunteer, contribute, and to share with the community what we do as structural engineers.

The SEAOA website has a fillable form to be used in nominating a member for honorary membership. I encourage you to read over the criteria once more and to nominate that person in our organization that made a difference.

THE RIGHT BRAIN
© Brent Wright rightbrain.wrightengineers.com



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

In Memoriam, Dr. Harry Lundgren

Charles Mackey, PE, SE



Dr. Harry Lundgren long-time professor in Structural Engineering passed away on January 30, 2020. Harry was born on May 2, 1928, in Chicago, Illinois to Harry J. and Edna Lundgren along with a younger brother. He grew up in Crown Point, Indiana where he graduated from High School, playing football, basketball, and baseball. Harry excelled in mathematics and his high school counselor pointed him toward Purdue and engineering. He graduated with a Bachelor of Science in Civil Engineering in 1950.

After graduation he worked for the Kawneer Company as a design engineer from 1953 to 1958. In 1955, Harry married Joyce Boller and they shared 62 years of marriage until she passed away in 2017.

In 1958 they moved to Phoenix where he worked for Fefer Steel and then with Salt River Project from 1959-1961 as a Senior Civil Engineer. He attended Arizona State University earning a Master of Science degree in Structural Engineering in 1961 and a Doctor of Philosophy in Structural Engineering from Oklahoma State University in 1967. Harry served on the ASU Engineering faculty from 1961 through 1989. At Arizona State University he was instrumental to the growth of the engineering department and particularly with the introduction of the micro-computer.

Harry was a very active member of the American Society of Civil Engineers and the Structural Engineers Association of Arizona. In the SEAOA, Harry served as the Western States Conference

representative, Central Chapter President, Vice President and State Trustee among others. His leadership on the various committees which included, Seismology Committee, Building Code and the Special Structural Inspection led to several code modifications for Arizona. Dr. Lundgren also provided a strong connection between the academic venue and the working professionals.

In 2015, Harry gave an interview about the first ASU computers. You can see it using the link below:

<https://asura.asu.edu/LundgrenVideoClip>

Code Committee Meeting Minutes: September 2, 2021

Paul Scott, PE, SE
Code Committee Co-Chair

The Structural Engineers Association of Arizona Code Committee met in person at Caruso Turley Scott Inc. office at 1215 W. Rio Salado Parkway, Suite 200, Tempe, AZ 85281 and at Structural Concepts office at 7230 E. Broadway Blvd Suite W7 in Tucson, AZ 85710, and via teleconference.

In Attendance:

Ed Wilson PCCI
Clarence Campbell PE
Jason Savage ACI
Paul Scott PE
Jennifer Patronski PE
Mel Slaysman PE
Chase Young PE
Sabrina Ballard PE
Steven Hess PE

Meeting began at 3:05 pm. It was decided to take the agenda items in reverse order because some individuals were in attendance for items #3, #4, and #5.

Meeting Agenda:

1. Consider allowing Risk Category I for shade and solar canopies in parking lots.
2. Consider allowing a wind-only loading for shade and solar canopies and not requiring Lr. Consider adding a load combo of a 200 pound point load at any location instead of wind.
3. Special Inspections – qualifications and certifications
4. Special Inspections – how to control/enforce qualification & cert requirements for Special Inspectors (with IBC or with local jurisdictions)
5. ACI 562 (assessment/repair of existing concrete structures) – they want to get it adopted by IBC

Item #5:

Jason stated the following:

1. ACI 318 is an older standard and focuses on design.
2. ACI 562 was developed by ACI for repair work.
3. ICC has not yet adopted/approved ACI 562. ACI 318-14 does not recognize ACI 562. (ACI 318-19 recognizes ACI 562 in commentary.)
4. Because of item #3, ACI & ICRI (International Concrete Repair Institute) have been pushing for individual states to adopt ACI 562.

Jason's question: Will SEAOA recommend adoption of ACI 562 by Arizona Jurisdiction?

Jennifer P. has discussed this item with the City of Phoenix regarding adoption of ACI 562.

Dennis Wipf (Gervasio & Associates) and Jeff Starling (Starling, Madison, & Lofquist) both had the opinion that Arizona Jurisdictions should adopt ACI 562.

Ed W. mentioned the importance, in his opinion, regarding having a common concrete repair & strengthening code, and that ACI 562 could be that document.

Clarence C. stated that, in the past, the manufacturers' recommendations were used to determine how the repair was to be done.

Steve H. suggested a joint ACI/SEAOA meeting to get educated regarding ACI 562.

Mel S. said he was not familiar with this document and was concerned about another code coming into the volume of codes already in place.

Action taken:

- Motion #1: Schedule a joint ACI/SEAOA meeting to introduce and explain ACI 562. Vote – Unanimous – Yes
- Motion #2: After the joint ACI/SEAOA meeting, put a vote to the SEAOA membership regarding whether the SEAOA should recommend Arizona jurisdictions adopt ACI 562. Vote – Unanimous – Yes

Item #4:

Jason explained testing of special inspectors is not fully covered by 318 and it would be helpful to also reference the SSI portions of ACI 562.

Jennifer P stated that having both 318 & 562 is important to have available and ACI 562 has SSI items that ACI 318/IBC does not have.

Mel asked if we were getting ahead of ourselves and that maybe ACI 562 needs to be adopted first.

No action taken on this item ... The thought was to let item #5 take care of item #4.

Item #3:

How are SSIs handled throughout the state?

Jennifer P pointed out the state of Georgia and City of Tucson have a document (an amendment to the IBC) that outlined the requirements for SSI. Jennifer will try to get this document in front of SEAOA.

Mel S. stated the city of Phoenix had produced a document outlining the SSI requirements. Mel will try to get this document to SEAOA to review.

Jennifer suggested that this should be an ongoing item for SEAOA and should be part of the next SEAOA Code Committee meeting in November.

Action taken: Have this topic be Item #1 for the next SEAOA Code Committee Meeting in November.

Item #2:

Steven H asked about using 12 psf downward load and wind uplift and lateral load per code.

Jennifer P. indicated that they use the IBC load combos.

No further action taken on this item.

Item #1:

Clarence stated that, in his opinion, these parking lots can be risk categories 1.

Mel Slaysman said that he thought the shade/solar canopy that is on top of a building should be the same risk category as the building it is on.

Steve H. asked about if there were any failures on these structures. Paul stated he knew of no failures.

No further action taken on this item.

2021 SEAOA Merit Award in Structural Engineering Winner. Martin, White & Griffis Structural Engineers, Inc.

Forensic/Renovation/Retrofit/Rehabilitation: Valleywise Health Central Plant

Central utility plant (CUP) projects are typically straightforward affairs, but the new CUP at Valleywise Health Medical Center was a highly complicated project. Built in one-third of its previous space within an existing warehouse structure in the middle of campus, the CUP required ingenuity, creativity, and collaboration to feed the campus' new utility grid successfully. It was crucial to deliver materials and supplies from the warehouse to the hospital operations were still ongoing. In addition, the design of a 20,000 square foot steel structure fully integrated within the existing tilt-up facility that maintained still-functional administrative and warehouse space.



Valleywise CUP Exterior

Complexity of Criteria

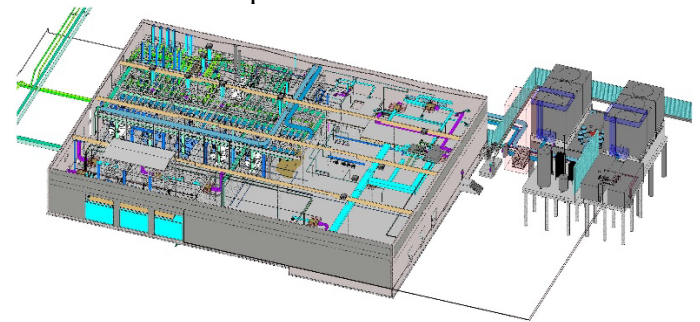
Serving the campus' level I trauma center, burn center, pediatric ICU and NICU, and multiple emergency centers, the Valleywise CUP is the beating heart of this central Phoenix safety-net hospital. As part of a campus transformation, the existing CUP, with its compact maze of pipes and conduits connecting five chillers, ten boilers, five cooling towers, and three electrical generators, needed to be moved to a more central location. The only available place was on the site of an aging 40,000 square foot warehouse where it could feed the

new utility grid and a new acute-care tower being constructed just yards away. Building a new facility on the warehouse site was not an option since the work could not disrupt ongoing supply deliveries from the warehouse to the hospital.

Another firm initially designed Valleywise's CUP, but their plan triggered updates to meet code requirements, which would have resulted in increased construction costs and delays. The health system and Maricopa County, owners of the project, determined that wasn't feasible, so MWG structural team was brought on board under a fast-tracked schedule and tight budgetary conditions.

Creativity of Structural Design

The structural team's creativity manifested itself in a design that independently supported the new renovations without increasing structural loads or triggering upgrades to the existing warehouse. This approach allowed the CUP to occupy the first floor of the existing structure where warehouse functions used to take place. The 11,000 square foot administrative offices, with 2,000 square feet on the ground floor and 9,000 square feet on a second floor, could remain functional and open for future renovation. The steel superstructure was also designed to accommodate another chiller, generator and two more boilers, enough equipment to power an additional hospital tower if needed.



*Structural Grid of Columns and Beam to
Accommodate New Equipment Requirements*

Constructability Challenges and Solutions

The existing warehouse was constructed in 1988 using tilt-up construction and a prefabricated wood truss system, glulam wood girders, and pipe columns. In 2000 a 9,000 square foot second-floor office addition was built, with the tilt-up concrete walls used for bearing, new steel columns used for vertical loads, and steel stud diagonal cross braces used for lateral resistance.

A structural grid of columns and beams was developed to accommodate new electrical and mechanical equipment requirements. New mechanical lines, including 30" diameter cold chiller and hot piping lines, were supported above and below the new steel structure. The steel-framed mezzanine was used to support stand-alone electrical rooms. New steel framing supported many of the new electrical conduit and small piping lines. The existing wood structure was also strategically analyzed to accommodate several conduit duct banks and keep costs and material usage minimum.

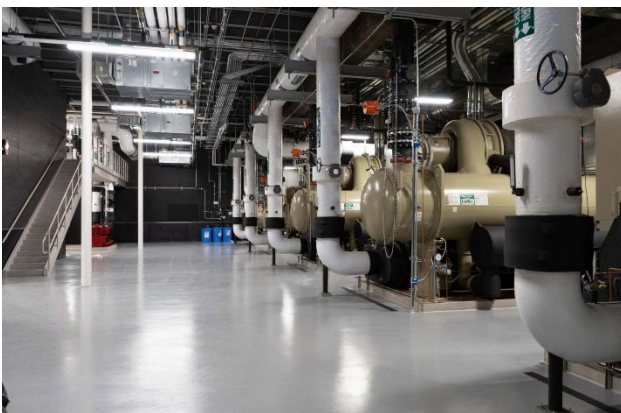
Independent support for the new piping and elevated mechanical equipment was via perimeter steel brace frames. The new steel-framed dog house for intake area is laterally braced by the existing plywood roof diaphragm. Sizing was strategically designed to limit stress increases on the existing roof diaphragm to less than 10% increase per the building code.

Application of Existing Techniques

Although the structural design of CUP's does not typically require unique approaches, the Valleywise facility did employ 2-foot-thick concrete isolation bases to support chillers and generators. Utilizing this advanced type of foundation protected ongoing supply-chain operations from plant noise and vibration, heightened by proximity.

Ingenuity for Efficient Use of Materials and Labor

Locating the new CUP within an existing structure is a highly sustainable move. Still, other structural efforts also contributed to the efficiency of labor and materials, most notably by carefully considering move-in and move-out processes for the three 2.5-MW generators and 30-in. condenser main that links the cooling tower and chillers in combination with intake air openings. Openings in the existing concrete walls as well as the roof were coordinated to expedite move-in and intake air openings, which had to be located in concrete panels and the roof and were carefully analyzed to confirm that shear forces did not exceed capacities. A new roll-up door for the plant's five 1,500-ton chillers was carefully placed to minimize transport from the truck bed to its final location, minimizing man-hours and the use of additional equipment.

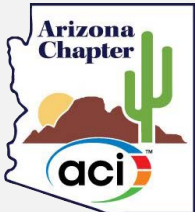


Interior View of Chiller Room Mechanical Space



American Concrete Institute
Always advancing

Chapter Technical Talks



ACI Repair Code

This presentation will introduce the ACI 562-16, "Code Requirements for Assessment, Repair, and Rehabilitation of Existing Concrete Structures and Commentary." This is the first U.S. code produced specifically for the repair of reinforced concrete. A new guide document for the code with additional information and project examples that help users interpret the code requirements will also be highlighted.

Topics covered in this presentation will include:

- Why a repair code is needed
- The philosophy behind ACI 562
- How the code promotes consistency in repair design
- Recognizing repair construction

**Date: October 26, 2021
(Central)**

Time: 5:30 PM

Location: Hilton

**2435 South 47th St.
Phoenix, AZ 85034**

Date: October 27, 2021 (Tucson)

**Time: 11AM - 11:45 AM Registration
11:45 AM - 2:00 PM Lunch &
Presentation**

**Location: Brother John's Beer,
Bourbon, & BBQ**

**1801 N. Stone Ave.
Tucson, AZ 85705**

Robert Howell, joined ACI as Professional Development Program Engineer in 2014. Previously he was a Lead Structural Engineer at IBI Group/Giffels LLC formerly Giffels Associates, Inc. Howell has 26 years of structural design experience in health care, industrial, research, power plant, educational, and commercial facilities. He also has 7 years of experience as an Owner's Representative Project Structural Engineer with GM Worldwide Facilities Group. Howell received his BS in civil engineering from Wayne State University and his MBA in supply chain management from Michigan State University. Howell is a licensed professional engineer in the state of Michigan.

Register at azaci.org

Questions: Denesha Price, Chapter Activities Coordinator

Denesha.Price@Concrete.org or 248.848.3830