



SEA - NEWS

A Publication of SEAOSD - Structural Engineers Association of San Diego

May

Volume 50, Issue 5

2016

In This Issue

May 17, 2016 Member Luncheon

May 17, 2016

Member- Lunch

Tuesday, May 17, 2016

Stone Brewery
2816 Historic Decatur Rd.
Bldg. 1, Suite #116
San Diego, CA 92106

Forensic Nonlinear Analysis of the Alto Rio Collapse

Detailed Nonlinear Analysis of the Alto Rio Building

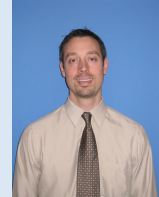
José I. Restrepo¹ and
Joel P. Conte¹

¹ Professor, University of
California, San Diego,
Department of Structural
Engineering, La Jolla,
California, USA.

Abstract

This seminar will
describe the results of

A Message From Your President



I would like to start out by thanking everyone that attended our annual SEAOSD golf tournament that took place last month. Our numbers were up from previous years, and it sounded like everyone had a great time. I also want to thank our golf committee for all of their hard work, time, and effort that it took to plan and organize this event. In particular, I want to recognize John Heinly for volunteering to chair this year's tournament and Heather Caya for all of her time and expertise in planning golf tournaments that she brought to the table. And lastly, we're always appreciative of our many sponsors for their donations and commitment in making this tournament a success!

Our meeting this month will focus on the investigation of the Alta Rio building that collapsed during the 2010 Chile Earthquake. I'm excited to have Professors Jose Restrepo and Joel Conte from the UCSD Department of Structural Engineering that will be joining us to discuss the reasons why a modern building designed and constructed to current code standards underwent a catastrophic collapse. They will also describe the results of detailed nonlinear finite element analysis that was used to evaluate the structural behavior of the building.

The entries for the SEAOSD Excellence in Structural Engineering Awards program are in. We have some great projects covering a wide variety of categories. The poster boards will be on display at the May 17 lunch meeting. Please plan to join us and cast your vote for the People's Choice Award. I want to thank everyone in advance that submitted a project as well as our Awards Chair, Ashley Zautcke, for taking over this position and coordinating the program.

I also want to recognize one of our members, Lianne Bell, who was recently honored in Washington D.C. for her longstanding work of mentoring local high school students as part of the ACE (Architecture Construction Engineering) program. You may have also noticed that this story was even picked up by the local NBC news too! Lianne has been involved with ACE for over 10 years, and she has personally helped students receive over \$200,000 to apply towards college education and

detailed nonlinear finite element analysis of the fifteen story Alto Rio building. The Alto Rio building was built in 2006 in the city of Concepción, Chile, was the only modern building that underwent a catastrophic collapse during the 27 February 2010, Mw 8.8 Maule earthquake. Eight lives were lost as a result of the collapse of this building. This building was typical of many medium rise buildings designed and built in Chile during the period 1996-2009. The lateral force resisting system of the Alto Rio building consisted of a dense array of 0.2 m (8 in.) thick transverse and longitudinal reinforced concrete bearing walls.

The Alto Rio building was modeled using two different approaches. The first finite element model consisted primarily of conventional 4-node shell elements of approximately 0.2 m x 0.2 m in size for the walls and slabs and smeared rebar sub-elements for the steel reinforcement.

careers in engineering, construction or architecture. Many of you may also know Lianne from her past work as SEAOSD Awards Chair, so please help me congratulate her on this achievement.

I would like to encourage everyone to attend the annual SEAOC Convention coming up in a few months from October 12 to 15. In case you need any additional reason to attend, I should also point out that it's taking place in Maui. For those of you that have never attended a SEAOC Convention, it's an excellent opportunity to hear a variety of technical presentations, get the latest advancements from industry partners, participate in social activities, and meet other structural engineers from across the state and world. There will be several sponsorship opportunities awarded by both SEAOSD and SEAOC, so please stay tuned for more information to take advantage of these opportunities.

In closing, I want to remind you there is still time to put your name in the running for several SEAOSD Board positions, including two Directors as well as Vice President and Treasurer. We will be sending out ballots very soon, so please contact me at President@SEAOSD.org if you are interested in becoming active in SEAOSD's leadership or want to find out more about the various positions. I hope you to hear from you soon!

Ryan Turner, S.E.
President@SEAOSD.org
SEAOSD President
2015-2016



Local Civil Engineer Honored in Washington D.C. for Mentoring High School Students
More than 300 students have benefitted, and have earned over \$200,000 in college scholarships San Diego-Asrecognition for her outstanding work encouraging high school students to pursue a career in engineering, construction or architecture, Lianne Bell, a structural engineer and project manager at KPFF Consulting Engineers, received the 2016 Engineering News-Record-ACE Outstanding Mentors Award. On April

The structure was modeled almost entirely using 4-node 24 degree-of-freedom shell elements with embedded smeared rebars. The analysis software for performing the nonlinear analysis of the Alto Rio building was ABAQUS/Standard FE computer program used in conjunction with the ANACAP-U concrete and the rebar constitutive models developed by ANATECH Corp.

The second finite element method files used the three-dimensional cyclic beam-truss model (BTM) successfully validated in the literature using experimental cyclic test results on reinforced concrete wall specimens.

The BTM modeling approach is able to capture the effects of flexure-shear interaction by updating the concrete compressive stress-strain relationship with the instantaneous tensile strain normal to the diagonal element carrying the compression stress field. The analysis software for performing

25th, at the Marriott Metro, Washington D.C., Bell was one of only six mentors from across the country to receive this honor. Bell volunteered as a mentor team leader with the San Diego affiliate of the ACE Mentor Program of America, and has become a role model for the future leaders of the building industry.

The award was sponsored and presented by BNP Media, a publisher of over 50 business-to-business media brands related to 11 different industries, including Engineering News-Record, Architectural Record, and 14 other media brands in architecture, construction, and engineering.

Chris Day, Board Chairperson of the San Diego ACE Mentor Program is extremely pleased that Bell was selected. "Over the past decade, Lianne has mentored hundreds of students enrolled in the ACE Mentor program at Kearny High School, inspiring and encouraging them to apply for scholarships. Lianne has personally helped students get over \$200,000 in money for college." Day explains that ACE San Diego has awarded over \$1,300,000 to date, and the organization is fortunate that volunteers like Bell are getting high school students excited about their futures. "For many of these students, the ACE scholarships gave them their first real shot at college and a career. We are very proud of her accomplishments."

Throughout the country as well as in San Diego, ACE Mentor Programs have gained a steady following and earned a solid reputation among the Architecture, Construction and Engineering communities. The unique partnering between industry professionals and high school students interested pursuing a career is long overdue.

About the ACE Mentor Program of America: A 501(c)3 nonprofit, ACE engages sponsors and volunteer mentors to expose students to real-world opportunities. The ACE mission is to engage, excite and enlighten high

the nonlinear analysis of the Alto Rio building was was the advanced structural analysis software framework OpenSees.

Views of the 15 story Alto Rio building before and after the 2010, Mw 8.8 Maule earthquake.

Speakers: Professor Jose Restrepo and Professor Joel Conte from UCSD Dept. of Structural Engineering

Jose Restrepo Bio:

Professor Restrepo focuses on the discovery of construction alternatives for state-of-the-art, performance-based designs. Before coming to UCSD in 2001, Jose Restrepo was a senior lecturer at the University of Canterbury. Restrepo is a member of the New Zealand Concrete Society. Professor Restrepo received his Ph.D. from the University of Canterbury, Christchurch, New

school students to pursue careers in architecture, engineering, and construction through mentoring and to financially support their continued advancement in the industry. Since its inception, ACE has awarded over \$14 million in scholarships to promising participants ACE Mentor Program of America (acementor.org). The San Diego affiliate has awarded over \$1.3 million and has had over 1000 students participate in the program. ACE San Diego



Scott Seltz (Left) Publisher, Engineering-News Record, introduces award recipient Lianne Bell (Center) with Jack Kalavritinos (right) President and CEO of ACE. The award was presented before a crowd of over 120 at the Marriott Metro Center in Washington, D.C.

Passionate about Structural Engineering? Share your enthusiasm with future engineers through the University SEAOSD Mentoring Program.

- **INVITE** Structural Engineering Students from local Universities to visit your firm and work with you for 2-4 hours. Job shadowing gives students an opportunity to spend time observing engineers and learning more about professional roles related to their major.
- **EDUCATE** students about the professional world of Structural Engineering. As a mentor, you will have the opportunity to offer advice and tools to help your student assess his or her strengths and seek out opportunities to grow in areas that need improvement.
- **INSPIRE** talented members of the up and coming Structural Engineering work force. Students are eager to hear about your "real life" career experiences, talk about challenges, as well as success. Additionally, students seek advice on how to shape their "life after college".

Examples of ways to introduce students to the workplace and profession:

- Give a tour of your office or job site and work space
- Show them examples of types of projects you have worked on

Examples of office tasks that students can perform include:

- Quantity take-offs
- Verifying survey data on plans

Zealand.

Joel Conte Bio:

Prior to joining UCSD in 2001, Joel Conte was an associate professor of civil engineering at UCLA and Rice University. Conte was named "Civil Engineering Professor of the Year" at Rice University and is a recipient of the Research Initiation Award from the National Science Foundation. Professor Conte received his Ph.D. from University of California, Berkeley.

[CLICK HERE TO REGISTER!](#)

"The 2016 Excellence in Structural Engineering Awards

SEAOSD Members:

Cast your votes for the People's Choice Awards at the May 17th Member luncheon. The projects in the running for awards will be on display. Let us know which is your

- Computing dead loads
- Simple flexure and shear computations

Note: It is not intended for students to perform billable work, rather replicate work.

Please fill out the attached mentor registration form. Registration forms are continuously accepted.

For questions, email Sabina Piras at sabina.piras@tylin.com

[Click here for the application](#)

Call for SEAOSD Board Nominations:

The association is looking for candidates to fill Board positions! The election is coming up the third week of May. Please nominate a worthy candidate, including yourself, by contacting Manny Sinha, at manny.sinha@parsons.com

BIG THANK YOU TO ALL OF OUR GOLFERS AND SPONSORS AT OUR GOLF TOURNAMENT ON APRIL 25

BEVERAGE CART SPONSORS

Simpson Strong Tie

KEG SPONSORS

AV Builder

HOLE SPONSORS

Epic Metals

Contech

SidePlate Systems

Cavignac & Associates

SME Steel Corp

Weyerhaeuser

Mayer Reprographics

Simpson Strong Tie

AV Builder

favorite.

The winners will be notified the first week of June and honored at the June 21st 2016 Awards Dinner. "

Mark your Calendars for our next member Dinner will be on June 21, 2016 at Stone Awards Night! More information to follow soon.

RCP Block
Boise Cascade
Clark Pacific
Hope-Amundson
ASC Steel Deck
AV Builder
Simspon Strong-Tie
Degenkolb
Josephson Werdowatz



New Member Applicant Postings

Eric Parker ~ Associate
Alan Kong ~ Associate
Brett Hart ~ Member SE
Matthew Hamby ~ Associate
Octavio Cortes Macouzet ~ Associate
Stephanie Kasza ~ Associate
Leonard Tran ~ Associate

USRC Certification & New Membership Opportunities

The US Resiliency Council (USRC - www.usrc.org) is pleased to announce two important new opportunities as it launches its rating system for the earthquake performance of buildings.

1. Join the USRC as we embark upon our mission to implement meaningful rating systems that describe the performance of buildings during earthquakes and other natural hazards.
2. Apply to become a USRC Certified Rating Professional and/or Certified Rating Reviewer to perform and review USRC ratings.

New membership opportunities and benefits are described at www.usrc.org, where you can join online.

[TO READ MORE CLICK HERE](#)

2017 SEAOC Convention

It may seem far away, but the 2017 SEAOC Convention in San Diego, is just around the corner! It will be held at the Hilton San Diego Resort and Spa at Mission Bay on September 12-17, 2017. If you are interested in joining the committee contact Lisa Bridge at

2017 SEAOC CONVENTION

Calling for Members within your companies to join us as we plan the 2017 SEAOC Convention and SEAOSD's 50th Anniversary Celebration! The SEAOC Convention will be hosted at the beautiful Hilton San Diego Resort & Spa in Mission Bay.

Younger Member Forum

If you are 35 or under and would like to participate in the SEAOSD YMF activities, contact YMF Chair, Aaron Taylor. He will let you know about upcoming YMF events and add you to the mailing list.

Aaron Taylor
Hope-Amundson
ataylor@hope-amundson.com

Quick Links

[Our Website](#)

[Job Forum](#)

[Events](#)

Professional Directory

RCP "Quality & Service Since 1947"
BLOCK & BRICK

Gina Adams, CDT, CSI
Architectural Representative

☎ (619) 460-7250
☎ (619) 247-6594
☎ (619) 460-7326
✉ gadams@rcpblock.com

8240 Broadway • Lemon Grove, CA 91945 • www.rcpblock.com

www.rcpblock.com

DARREN J. MEDEIROS

P.O. Box 387
Coalville, Utah 84017

Phone: 801.243.7473
Plant: 801.467.2800
Fax: 801.359.8541
ucorp4@live.com
www.utelite.com

UTELITE
CORPORATION

www.utelite.net

COMMITTEE ROSTER

Your 2015-2016 Committee Roster

[CLICK HERE](#)

JOB FORUM

May

BWE

ENGINEERED TO EXCEED EXPECTATIONS

BWE is looking for the right licensed engineer that either already holds a CA SE license, or is ready to pass the exam. Experience in all basic building materials is a prerequisite; as are outstanding communication skills.

Generating business by maintaining existing relationships as well as developing new ones is a key component of this position combined with the desire and ability to respectfully work with fellow team members. If this describes you, and if working on dynamic projects with a wide variety of clients interests you, send your cover letter, resume, availability and salary requirements to resumes@bwesd.com.

April

k p f f

VERCO DECKING, INC.
a NUCOR company
Steel Roof and Floor Deck

Engineering Office:
 Los Angeles, CA

Sales Office:
 Los Angeles, CA

Steve Wiesner
 (714) 938-0307
 swiesner@vercodeck.com

Jim Taylor
 (714) 939-9128

www.vercodeck.com

 **GEOCON**
 GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
Success Built on Service

SAN DIEGO (858) 558-6900

MURRIETA LOS ANGELES SAN BERNARDINO BAKERSFIELD
 SACRAMENTO IVERMORE RENO/LAKE TAHOE LAS VEGAS PORTLAND

WWW.GEOCONINC.COM

www.geoconinc.com

CAVIGNAC ASSOCIATES
 INSURANCE BROKERS

460 B Street | Suite 1800 | San Diego, CA 92101 | cavignac.com

Kelly Potter, PWCA | Account Executive
 kpotter@cavignac.com | 619-744-0585

www.cavignac.com

2016 Calendar

New Location!

Stone Brewery

2816 Historic Decatur Rd.,

Bldg. 1, #116

San Diego, CA 92106

Tuesday, May 17, 2016

May Member Luncheon

Tuesday, June 21, 2016

Awards Night

****Meeting sponsorship opportunities available for the 2016 meetings. Contact secretary@seaosd.org for more details. Future meeting details will be posted on the website (www.seaosd.org) as they become available.**

KPFF values freedom. Freedom to work on what inspires you. Our engineers and modelers work on a vast spectrum of projects that are located around the globe: everything from anchorage of mechanical systems to complex, non-linear analysis of high-rise structures. We have all the benefits of a large, stable firm but none of the red tape that comes with it. Providing first-class service to our clients in a collaborative work environment is our goal. KPFF is experiencing solid growth and are looking for exceptional engineers and modelers to join us.

Our current projects include:

- **Airports**
- **Arenas + Stadiums**
- **Long-Span Structures**
- **Bridges**
- **Government Facilities + Embassies**
- **Commercial Developments**
- **High-Rise Structures**
- **Mixed-Use Developments**
- **Corporate Campuses**
- **Healthcare + Medical Facilities**
- **Education Facilities (K-12 + Higher Ed)**
- **Museums + Convention Centers**

Position - Structural Engineers (Experienced) - San Diego, CA

Position Summary

As a Structural Project Engineer, you will work individually and collaboratively in the design and construction process for a wide array of challenging projects. You will work closely with talented engineers, BIM / CAD technicians, architects, project managers, contractors and client teams.

Structural Engineer Preferred Qualifications

- **PE licensure**
- **Master's Degree Preferred**
- **3-8 years of experience in structural engineering**
- **Strong verbal and written communication skills**
- **Creative, proactive, and detail-oriented individual**
- **Outgoing individuals who thrive when working directly**

with architects, contractors and other engineers

SEAOSD Board of Directors Meeting

The SEAOSD Board of Directors normally meets the second Tuesday of every month. The February Board of Director's meeting will be held on Tuesday, May 17, at 10:00 AM at the Stone Brewery. If you have an issue to bring before the Board please let a member of the Board know so that it can be placed on the agenda. The past agendas/minutes can be viewed on the SEAOSD webpage at <http://www.seaosd.org>.

Send correspondence to: SEAOSD, 401 W. Lexington Ave. #12621, El Cajon, CA 92022, (619) 733-2734 or email secretary@seaosd.org.

SEA-NEWS Deadlines

June 2016	05/20/16
July 2016	06/20/16
August 2016	07/20/16
September 2016	08/20/16

These dates are subject to change.
You may contact the Editor:

Heather

secretary@seaosd.org

Phone: 619-733-2734

c/o SEAOSD

401 W. Lexington Ave., #12621

El Cajon, CA 92022

All submissions must be given to the Editor by **12:00 PM** the day of the deadline to allow time for formatting and printing.

Thank you,

SEAOSD Publications Committee

Experienced Structural Engineer:

Apply

Here:http://chc.tbe.taleo.net/chc05/ats/careers/requisition.jsp?org=KPFF_2&cws=63&rid=271

**Position: Structural Engineers (Experienced and Entry-Level)-
Portland, OR**

Position Summary

As a Structural Project Engineer, you will work individually and collaboratively in the design and construction process for a wide array of challenging projects. You will work closely with talented engineers, BIM / CAD technicians, architects, project managers, contractors and client teams.

Experienced Structural Engineer Preferred Qualifications

- **SE licensure**
- **2-8 years of experience in structural engineering**
- **Strong verbal and written communication skills**
- **Creative, proactive, and detail-oriented individual**
- **Outgoing individuals who thrive when working directly with architects, contractors and other engineers**

Entry-Level Engineer Preferred Qualifications

- **Master's Degree Preferred**
- **Strong verbal and written communication skills**
- **Creative, proactive, and detail-oriented individual**
- **Outgoing individuals who thrive when working directly with architects, contractors and other engineers**

Experienced Structural Engineer:

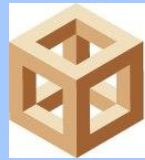
Apply

Here: chc.tbe.taleo.net/chc05/ats/careers/requisition.jsp?org=KPFF_2&cws=63&rid=73

Entry-Level Structural Engineer:

Apply

Here: chc.tbe.taleo.net/chc05/ats/careers/requisition.jsp?org=KPFF_2&cws=63&rid=151



WoodWorks

WoodWorks Unique Career Opportunity

Location: Home Based Office in So. CA

The Wood Products Council (WPC) is looking for a Technical Advisor to support design professionals when they have questions about the use of wood in non-residential or multi-family buildings.

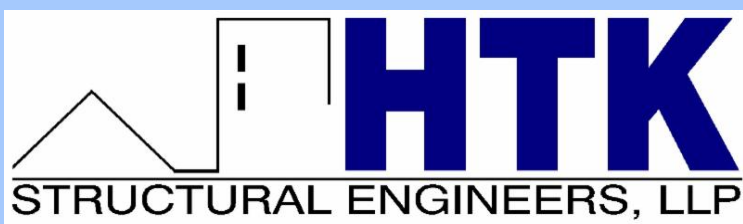
Part of a national Design & Construction Services team, the Technical Advisor will work with the Regional Director to build a network of architects, engineers, builders and developers throughout So. CA, encourage these individuals to use more wood in their designs, and support their ability to do so by providing technical assistance.

If you are looking for a unique way to combine your people skills and structural engineering background, this might be the right opportunity for you!

For More Details, please go to

<http://www.woodworks.org/about-woodworks/careers/>

February



Job Title: Structural Design Engineer

HTK Structural Engineers, located in San Diego (Poway), is seeking experienced (2-7 years) ENGINEERS to perform structural design and detailing for a variety of commercial and residential projects. Knowledge of wood, structural steel, concrete masonry and current building codes is required. NOTE: This is a position for structural design (not mechanical, plumbing, etc.). Competitive salaries, great bonuses and retirement package. Paid health/vision and dental insurance, vacation, sick leave and holidays. Great work environment! Please send resumes to: ts@htkse.com.

The logo for Reid Middleton. It consists of the words 'Reid Middleton' in a white, bold, sans-serif font. The text is set against a dark blue rectangular background. The 'M' in 'Middleton' is significantly larger than the other letters and overlaps the 'id' in 'Reid'. Below the blue background is a white horizontal bar.

Company Information

REID MIDDLETON, INC., is a civil and structural engineering firm with a 60-year history of service to public and private clients throughout the Pacific Rim, including Hawaii and Alaska. We are headquartered in Everett, Washington with additional offices in Spokane, WA; San Diego, CA; Anchorage, AK; and Honolulu, HI. We have a culture of hard working and highly motivated people who are committed to each other's success. We believe in flexible work schedules, celebrating our successes, and enjoying our time away from work.

Our firm's market-focused organization includes a diverse portfolio of Aviation, Civic/Municipal, Commercial, Education, Healthcare, Industrial, Military, Transportation, and Waterfront projects. Please refer to www.reidmiddleton.com for more information about our portfolio.

Project Engineer, Structural Engineering

Location: San Diego, CA

We have been actively working in the Southern California region for the last 10 years. The steady growth of our structural engineering practice has created opportunities for challenging design, project management, business development, and professional growth in our recently opened San Diego, CA, office. The right candidate has a unique opportunity for professional growth within a well established, employee-owned, professional design firm.

Requirements for this position include the following:

* Experienced Professional Civil or Structural Engineer with a minimum of 5 years' experience in structural design.

- * Bachelor's Degree in Civil or Structural Engineering.
- * Knowledge of ETABS, SAP, SAFE, REVIT BIM, AutoCAD, and Microsoft Office software.
- * Master's Degree in Structural Engineering (preferred).
- * Licensing as a Professional Engineer in the State of California (preferred).

Primary responsibilities include the following:

- * Structural Engineering design.
- * Development of design drawings, specifications, and cost estimates.
- * Preparation of design documents and technical reports.
- * Coordinating and leading technical and professional staff.
- * Assistance with the preparation of project proposals.
- * Project development and management.
- * Performing construction administration of designed projects.
- * Coordinating subconsultants.

The successful candidate must be highly qualified, motivated, and experienced. They must possess excellent interpersonal and communication skills and the ability to participate within a team of engineers and drafters to engage in structural analysis and design of structural systems in concrete, wood, masonry, and steel.

The candidate must also have the ability to work independently and use initiative to find solutions to engineering problems.



Our firm's market-focused organization includes a diverse portfolio of Aviation, Civic/Municipal, Commercial, Education, Healthcare, Industrial, Military, Transportation, and Waterfront projects. Please refer to www.reidmiddleton.com for more information about our portfolio.

Entry Level Engineers, Structural Engineering

Location: San Diego, CA

The steady growth of our structural engineering practice has created opportunities for challenging design, professional development, and professional growth in our San Diego, CA, office.

We are looking for a highly qualified and motivated entry-level engineers (Designers) to join our structural engineering team.

Requirements for this position include the following:

- * Bachelor's Degree in Civil or Structural Engineering.
- * Licensing as an Engineer-In-Training.
- * Knowledge of AutoCAD and Microsoft Office software.
- * Master's Degree in Structural Engineering (preferred).
- * Experience with structural analyses and design software such as Visual Analyses, ETABS, SAP, SAFE, Perform 3D, and Revit Building Information Modeling (BIM) software (preferred).

The successful candidate must possess excellent interpersonal and communication skills and the ability to participate within a team of engineers and drafters to engage in structural analysis and design of structural systems in concrete, wood, masonry, and steel.

The candidate must have the ability to work collaboratively in a team environment and the ability to work independently as well. We are looking for problem solvers.



Wiseman + Rohy Structural Engineers is a full service Structural Engineering company with four decades of quality projects constructed around the United States. Most of these projects are in Southern California and western states.

We have an opening for an engineer with over 5 years of experience in structural engineering. This position offers the opportunity to participate in challenging and unique projects in all types of commercial structures. We are looking for a highly motivated engineer to become a long-term part of this established company.

Immediate position available.

Please Send Resumes To: HR@wrengineers.com