

# ARCE

ARCHITECTURAL ENGINEERING DEPARTMENT | COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN | SUMMER 2018

## 'WORLD CLASS' IN SESSION EXPLORING NEPAL

CAL POLY



# Expanding Our World

## TRAVELS ABROAD ENLIGHTEN, ENRICH AND INSPIRE US

As I welcome you to another annual ARCE magazine, I thank Holmes Structures for sponsoring this edition. Holmes has impressive projects around the world and has attracted many of our top architectural engineering (ARCE) graduates.

As this issue reports, we have conducted lab dedications and rededications for the Simpson Strong-Tie, SidePlate

**BELOW:** Department Head Al Estes experiences the humidity of a trek in the Himalayan foothills during a 2017 trip to Nepal with students.

and Berridge labs this year. We have commitments for lab sponsorships from Nucor Steel, KPFF and Clark Pacific, which means this successful sponsorship program will continue to thrive.

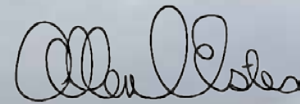
This issue celebrates the global reach of the ARCE program. Eighteen ARCE students completed senior projects in Rwanda, Malawi and the Dominican Republic through Journeyman International this year. Faculty members presented papers at international conferences and completed projects/ research in Greece, New Zealand, Spain and Tanzania. Pamalee Brady and I ventured outside our comfort zones as we accompanied 15 students to Nepal to work with Miyamoto International.

James Mwangi traveled the globe, having won the inaugural Simpson Strong-Tie/ Build Change Fellowship.

The ARCE program consistently has about 40 percent women enrolled, but it is particularly noteworthy that last fall's first-year class contained 51 women and 50 men — an all-time first for this program.

I am happy to welcome Michael Deigert as our newest faculty member and Vince Pauschek as our lab technician. Congratulations to Peter Laursen, who is being promoted to full professor, and to Erling Smith on his retirement.

In this issue, you will read about hosted receptions, student travel and cool projects. I offer my thanks to the Parents Learn By Doing Fund, scholarship donors and to so many other generous sources that make these activities possible.



ALLEN C. ESTES | DEPARTMENT HEAD  
ARCHITECTURAL ENGINEERING







Dean Christine Theodoropoulos joined ARCE students and Department Head Al Estes for the Order of the Engineer ceremony.

#### DEAN'S MESSAGE

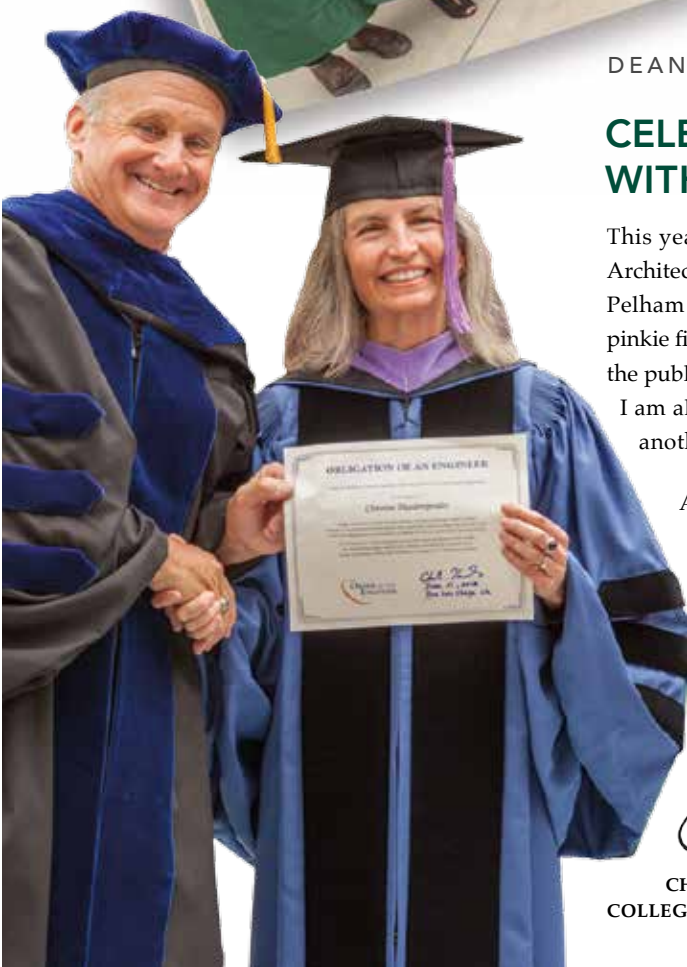
## CELEBRATING AN IMPORTANT COMMITMENT WITH OUR REMARKABLE STUDENTS

This year, I participated in the ARCE Order of the Engineer ceremony held at the Architectural Engineering Department's graduation celebration, sponsored by Barrish-Pelham in Sacramento. I certainly value having the stainless steel ring placed on the pinkie finger of my working hand as a reminder of the engineer's obligation to safeguard the public. But more importantly, I enjoyed participating alongside the ARCE students.

I am always impressed with their drive, camaraderie and close connection to one another. It is a huge strength of this department.

As I enter my sixth year as the dean of Cal Poly's College of Architecture and Environmental Design, I remain proud of our entire college. I salute the faculty, staff and students who have created wonderful learning opportunities, embraced interdisciplinary experiences and traveled around the globe to promote Cal Poly. This year we have redoubled our commitment to inclusion and diversity. Not surprisingly, it has been the students who have provided some of the best ideas for us to implement going forward.

CHRISTINE THEODOROPOULOS, AIA, PE | DEAN  
COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN



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#### ON THE COVER

Architectural engineering students Tia DeHarpport and Kyle Chase hike in the Himalayan foothills with classmates during a 2017 trip to Nepal, where they worked on an earthquake-damaged school outside Kathmandu. Read more on Pages 12-14.

# Exercising Mind and Body

... AT 2017 SEAOC CONVENTION, ARCE RECEPTION AND CSI PARTY



Once again, several Cal Poly architectural engineering (ARCE) faculty members and students attended the Structural Engineers Association of California (SEAOC) Convention to learn about new trends and practices in the field and catch up with colleagues, alumni and friends.

The 2017 event, held in September at the Hilton San Diego Resort and Spa, marked SEAOC's 86th annual convention.

This year, as in 11 of the past 12 years, the ARCE Department hosted a reception for alumni, industry and friends. "About 60 people showed up," said Department Head Al Estes. "Conference organizers are wonderful about welcoming our reception and attendance year after year."

It's quite an honor for the Cal Poly ARCE students — the only students in the nation who consistently attend this professional convention. Tia DeHarpport, a fourth-year ARCE major and vice

president of Cal Poly's student chapter of SEAOC, was one of several club officers who attended, along with Cory Ihnotic, Calvin Roth and Sophia Abshire.

ARCE faculty member Cole McDaniel also attended the conference along with Alec Zavala (M.S., ARCE, '16) who presented their joint research on "The Influence of Nonstructural Components and Systems (NCS) on the Dynamic Behavior of Buildings."

"I enjoyed having a variety of presentations from which to choose," DeHarpport said. "Many presenters were focused on innovative topics; it was very interesting to hear what they had to say."

The students helped the conference organizers run the registration desks in return for free registration and admission to all events — a model that has been successful for several years.

The students formed the Structural Engineers Association of Southern California (SEAOSC) team for the President's Cup competition and won the event. Recent ARCE graduates formed a large portion of the other three regions. Competition events were consistent with this year's theme, Top Gun.

The next conference will be held in Palm Desert, California, and Cal Poly's ARCE Department will have a presence there again. ■



**LEFT:** ARCE students strategize with their coach, Ken O'Dell (ARCE '89), in the SEAOSC President's Cup competition. From left: Calvin Roth, O'Dell, Cory Ihnotic, Tia DeHarpport and Sophia Abshire.

**TOP:** 2016 ARCE graduates Sean Westphal (left) and Nate Hall pose with a Tom Cruise look-alike at the 'Top Gun'-themed event.

**MIDDLE:** Students (in foreground) Sophia Abshire and Calvin Roth accompany the band at yet another memorable CSI party.





## CSI, ARCE GATHERINGS ATTRACT GROOVIEST ENGINEERING CROWDS

Ashraf Habibullah, founder of Computers and Structures Inc. and longtime friend of the Architectural Engineering (ARCE) Department, hosted his annual black-tie party Feb. 10 at City Hall in San Francisco. The theme for the 2018 gala was “007,” and ARCE students, alumni, faculty and staff were well represented.

As has become custom, the ARCE Department hosted a reception the night before at Schroeder’s Restaurant in San Francisco. Over 60 friends and alumni gathered to celebrate with Department Head Al Estes and Administrative Coordinator Erika Clements for an evening of plentiful food, German beer and camaraderie. ■



**ABOVE:** Alumni at Schroeder’s are (from left) Katie Eberle, Nick Petrarca, Natalie Gibbons, Alex Remiticado, Emily Setoudeh, Daniel Menno and Kate Cuddington.

**TOP:** The ‘007’ gala, complete with actresses portraying “Bond Girls” (left and right), was hosted by CSI founder Ashraf Habibullah (center). Guests included (from left) College of Architecture and Environmental Design Dean Christine Theodoropoulos, ARCE Department Head Al Estes and his aunt, Jacqueline Thompson, and ARCE Administrative Coordinator Erika Clements and her husband, Tres Clements.



# INSPIRATION BUILDERS

“Embracing Opportunity” was a fitting theme for the 28th annual Structural Forum, at which Elizabeth Hausler, founder and CEO of Build Change, delivered an inspiring keynote address focusing on not just helping people but empowering them.

“Getting Elizabeth Hausler was a real treat,” said Architectural Engineering (ARCE) Department Head Al Estes. “It started when Structural Engineering Students for Humanity visited the Build Change office in Nepal during their trip in September. We heard the story of the founder, who started Build Change while she was a doctoral student. It was so compelling, we wanted to hear it firsthand. Three of us sent her an invitation on the same day, and she graciously accepted.”

Hausler founded Build Change in 2004 based on her unique vision for disaster assistance and has since earned numerous awards and honors, including being named the 2011 U.S. Social Entrepreneur of the Year by the Schwab Foundation and a 2009 Ashoka-Lemelson Fellow.

The morning session of Structural Forum also featured talks by Mike Korolyk, principal with Tipping

## GUEST SPEAKERS — INCLUDING FOUNDER OF BUILD CHANGE — IMPART WISDOM AT STRUCTURAL FORUM

Structural Engineers; Richard Dreyer, principal with Holmes Structures; and a joint presentation by Hayley Dickson, an engineer at Forell/Elsesser Structural Engineers, and Theresa Curtis, a senior associate in Thornton Tomasetti’s structural engineering practice.

Korolyk spoke on “The Structure of Opportunity, a Memoir”; Dreyer presented “One Thing Leads to Another”; and Dickson and Curtis talked about “The SE3 Project,” an initiative to improve engagement and equity in the structural engineering profession.

Structural Forum 2018, held Feb. 3, was hosted by Cal Poly’s chapter of the Structural Engineers Association of California (SEAOC). It was planned and organized by ARCE student and Structural Forum Chair Sophia Abshire, with help from the SEAOC board.

Abshire thinks her hard work organizing the event was worth it. “Structural

**LEFT:** Elizabeth Hausler, founder and CEO of Build Change, gave the keynote address.

## 2018 PARTICIPATING COMPANIES

*ARCE extends its sincere thanks to the 52 companies that made the 28th annual Structural Forum a success. You truly make a difference by enriching the experiences of our students.*

Advanced Structural Design Inc.  
Barrish Pelham & Partners Inc.  
Brooks Ransom Associates  
Buehler & Buehler Associates  
BuroHappold Engineering  
Coffman Engineers  
(formerly Hope-Amundson)  
Daedalus Structural Engineering  
DCI Engineers

Degenkolb Engineers  
Englekirk Partners Consulting  
Structural Engineers Inc.  
Fluor Corporation  
4 S.T.E.L.  
Gessner Engineering LLC  
Gregory P Luth & Associates Inc.  
Harris & Sloan  
Holmes Structures

IDA Structural Engineers  
Innovative Structural  
Engineers Inc.  
JCE Structural  
Engineering Group  
John A. Martin & Assc. Inc.  
John Labib & Associates  
KNA Consulting Engineers Inc.  
KPFF Consulting Engineers





**ABOVE:** Emma Morley meets prospective employers at the bustling Career Fair.

**RIGHT:** Forum Chair Sophia Abshire (in beige) with SEAOC board members (from left) Jon Peelen, Eddie Kaminski, Samantha Solow and Olivia Pepe-Phelps.

Forum required a lot of planning and organizational skills, and it helped me gain confidence in my abilities as a student and a leader," she said. "I thank the ARCE Department and SEAOC for the opportunity and experience."

Structural Forum had another record-breaking year with 52 companies and 217 students in attendance. Students captured the highlights of the event, which can be seen at: <https://www.youtube.com/watch?v=5aDWQNIq5vk>. ■



Lionakis  
LPA Inc.  
Mackenzie  
MHP (Myers, Houghton & Partners Inc.)  
Miyamoto International Inc.  
MKM & Associates  
Moffat & Nichol  
Murphy Burr Curry Inc.

MWA Inc.  
Nishkian Menninger Consulting and Structural Engineers  
Nous Engineering  
PACE Engineering  
Paradigm Structural Engineers Inc.  
PCS Structural Solutions

Peoples Associates  
Structural Engineers  
Rutherford + Chekene  
SidePlate Systems Inc.  
STB Structural Engineers Inc.  
Strandberg Engineering  
Structural Engineers Inc.  
Simpson Strong-Tie  
Summit Engineering Inc.

Taylor & Syfan  
Tipping Structural Engineering  
TKJ Structural Engineering  
Tuan and Robinson Structural Engineers Inc.  
Watry Design Inc.  
Wiss, Janney, Elstner Associates Inc. (WJE)  
ZFA Structural Engineers

# A Rewarding Experience

## 2018-19 SCHOLARSHIP WINNERS ANNOUNCED AT ANNUAL LUNCHEON

At this year's Architectural Engineering (ARCE) Department's scholarship luncheon, 36 students were awarded 23 scholarships totaling nearly \$130,000 — topping the total awarded last year by almost \$35,000.

Several donors attended to personally award the scholarships on behalf of themselves, their companies or foundations. They included Scott and Julia Starkey, Alan Hanson of Simpson Strong-Tie, Holly D'Abreau of the D'Abreau Family Foundation, and Art Ross of CYS Structural Engineers Inc.

SGH (Simpson Gumpertz & Heger Inc.) won this year's ARC'Y Award for best award presentation video submission. They will be presented with a statuette, much in the style of the Emmy Awards.

### COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN SCHOLARSHIPS

**Castagna Scholarship** (\$15,000 each) — Tracy Doan, Lilliann Lai, August Messano, Tony Nguyen and Colin Ridgley

**Herbert E. Collins Scholarship** (\$1,500 each) — Julia de Hart, Jessica Resta, Neil Robertson

**Riddle Scholarship** (\$1,000) — Joshua Lange

**Robin L. Rossi Award** (\$1,000 each) — Jiaming Liu, Iryna Turchyn

**RRM Scholarship** (\$3,000) — Dean Becker

### ARCHITECTURAL ENGINEERING DEPARTMENT SCHOLARSHIPS

**Emanuele Barelli Structural Engineering Scholarship** (\$1,000) — Nicholas Slavin

**Eugene E. Cole S.E. Senior Project Award** (\$3,000 each) — Aiden Bernhardt, Sydney Gallion and Thomas Sidebottom

**D'Abreau Family Foundation Scholarship** (\$1,000) — Luke Ostrom

**Degenkolb Engineers Scholarship and Internship** (\$2,500) — Kiana Underwood

**Fluor Foundation Scholarship** (\$1,000) — Michael Goldenberg

**Forell/Elsesser Engineers Scholarship** (\$1,000) — Bryce Gagner

**Paul F. Fratessa Memorial Scholarship** (\$1,000) — Jessica Resta

**KNA Consulting Engineers Senior Project Scholarship** (\$1,500 each) — Garrett Brown, Jerry Luong

**KPFF Los Angeles / Pasadena Scholarship** (\$1,500) — Alex Esser

**John Labib and Associates Scholarship** (\$1,500 each) — Nate Moore, Anna Sy, Ben Sykes

**John A. Martin and Associates Scholarship** (\$1,500) — Abby Lentz

**Hans Mager Scholarship** (\$1,000) — Bryan Garcia

**Simpson Gumpertz & Heger Inc. Scholarship** (\$2,000) — Elyssa Adams

**Carson Starkey Scholarship** (\$2,500 each) — Tomlinn Cox, Emmanuel Corona Navarro, Joshua Shockey and Eva Wiczorek

### OUTSIDE SCHOLARSHIPS

**CMACN Engineering Scholarship** (\$750 each) — Anthony Beers, Corey Huang

**Simpson Strong-Tie Scholarship** (\$2,000) — Olivia Pepe-Phelps

**Structural Engineers Association of Southern California Scholarship** (\$1,000) — Olivia Pepe-Phelps

**Structural Engineers Association of Northern California Scholarship** (\$5,000) — Sydney Gallion



**LEFT:** Department Head Al Estes presents a Structural Engineers Association of Southern California scholarship to Olivia Pepe-Phelps.



# REFLECTIONS

## NEW YORK CITY SIGHTS FILL SPRING BREAK

Architectural engineering (ARCE) Professor Graham Archer and 22 ARCE undergraduates spent spring break in New York City, learning about opportunities in structural engineering, bonding with classmates and exploring the exciting city.

This wasn't the first time New York was the destination for the traditional spring field trip, but "the city that never sleeps" offers a trove of opportunities and experiences unlike any other cosmopolitan city. Other recent spring break trips have been to Chicago, London, Singapore and Vancouver.

The students toured four engineering firms: BuroHappold, Thornton Tomasetti, Robert Silman and SuperStructures. "Each of the firms offered something unique, and students had the chance to learn from very experienced engineers," said participant Tia DeHarpport, a fourth-year ARCE major. "We also traveled to two project sites that the structural engineers had worked on, and we learned in detail about the struggles they went through to complete the innovative projects."



After the office and site visits, students explored New York City as they liked. "From visiting Central Park to attending Broadway shows, the students were able to find activities that interested them," DeHarpport said.

Fourth-year students who went were: Christopher Berridge, Alex Buchanan, Kyle Chase, Erica Croft, Tia DeHarpport, Alvaro Gonzales, Anugrah Gupta, Ricardo Gustavson, Cory Ihnotic, Edward

Students visited landmarks such as the World Trade Center Memorial and Museum (top) and the center's metro station (above).

Kaminski, Kevin Khieu, Melissa Mota, Tanya Wohlfarth. Third-year students were: Anisha Datta, Michael Goldenberg, Logan Peck, Karina Rosales, Ben Sykes, Roberta Veliz, Tiffany Wang, Jenna Williams and Mark Wright. ■



## AFTER A FIRE, STUDENTS LEND A HAND TO REBUILD THE NORTHERN CALIFORNIA TOWN OF WEED



**ABOVE:** Members of the interdisciplinary team from Cal Poly survey the site for the affordable housing project in Weed.

**BELOW:** The project site has a view of Mount Shasta.

The destruction wrought by such natural disasters as earthquakes, floods and fires often causes significant hardships and struggles for cities and communities trying to rebuild; however, those events also provide some valuable Learn by Doing opportunities for students — especially those studying the built environment.

Such was the case for an interdisciplinary group of College of Architecture and Environmental Design (CAED) students who worked with the community of Weed and the local nonprofit group Great Northern Services (GNS) to rebuild homes lost in the devastating 2014 Boles Fire.

“GNS’s office building was one of the casualties of the fire, and after relocating to a new building, the agency decided to develop the site into several residential home lots for workforce housing,” said architectural engineering lecturer Dennis Bashaw, who co-taught the course with Maggie Kirk in the Architecture Department and Greg Starzyk in Construction Management.

Specifically, the students in ARCE 415: Interdisciplinary Capstone Project, a team-based, integrated project-delivery course (IPD), created designs for affordable houses to be put on what is now a four-lot subdivision. The project is starting with the construction and sale of one home. The proceeds from that sale will be used to build a second home, and so on. City of Weed officials hope the project escalates to others areas beyond the former GNS office site.

According to Bashaw, “The IPD course employs a relatively new project-delivery method that encourages all project disciplines to participate together in all aspects of a project, rather than solely their own discipline, to produce an effective, integrated and cost-effective







**ABOVE:** Cal Poly students present their proposal to Weed project coordinators. From left: Bryan Lee and Franziska Beck (architecture majors); Sergio Vergara (construction management); Megan Lundahl (architecture); and Trent Pichel (architectural engineering).

project. The course aims to bring together students in architecture, architectural engineering and construction management.”

For the Weed project, students in the three disciplines worked collaboratively in a professional setting while also keeping the client, GNS, involved in the entire process — from design to construction.

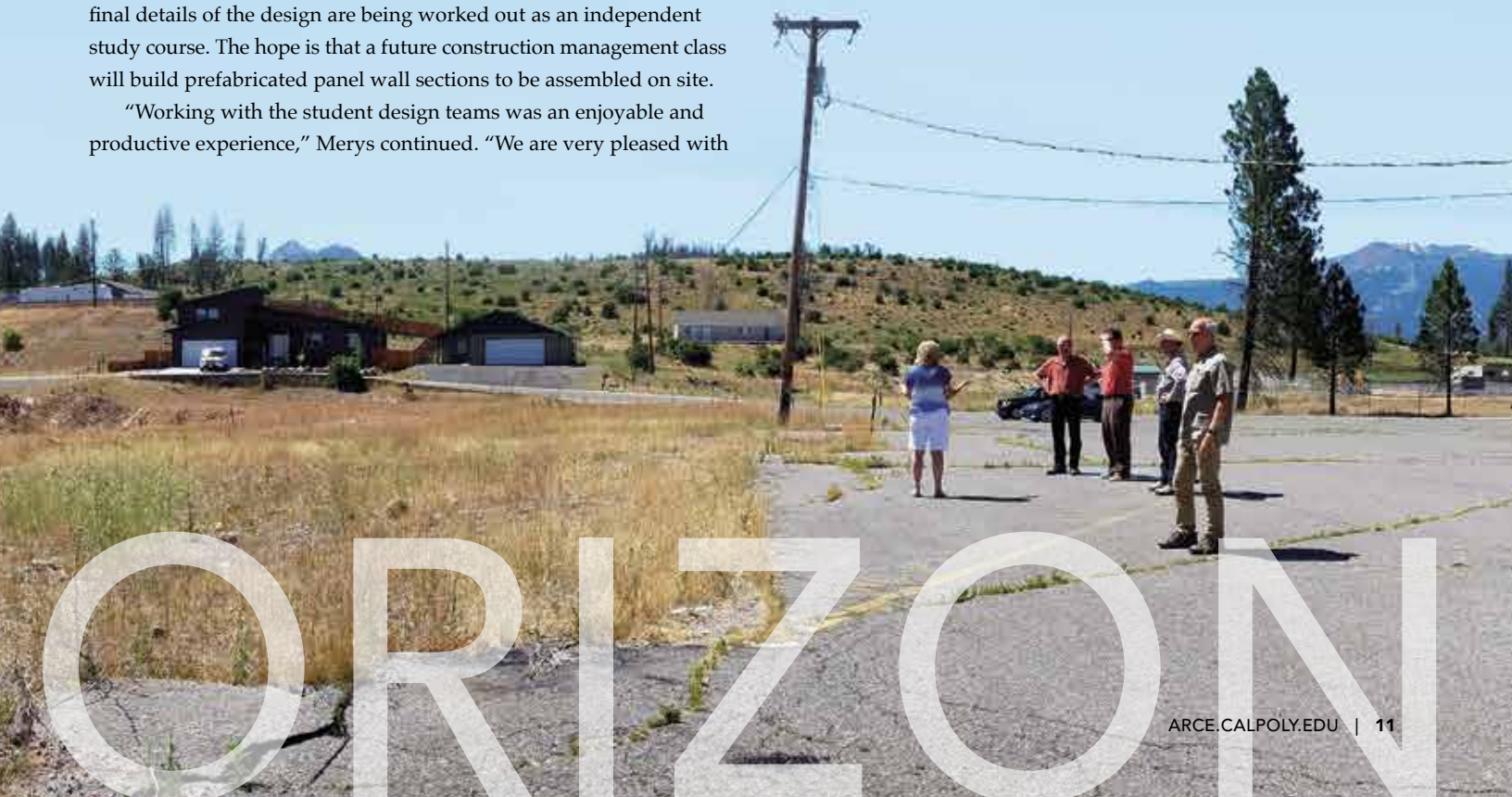
During fall 2017, eight teams comprised of students from each discipline developed a unique design solution. “We made a trip to Weed early in the quarter for the students to meet with the client and familiarize themselves with the site,” Bashaw explained. “Throughout the quarter, students conducted several video conferences with GNS to present their designs and receive feedback.”

Rod Merys, director of real estate development at GNS, said, “The final details of the design are being worked out as an independent study course. The hope is that a future construction management class will build prefabricated panel wall sections to be assembled on site.

“Working with the student design teams was an enjoyable and productive experience,” Merys continued. “We are very pleased with

the results and look forward to continuing to work with Cal Poly on this project.”

For their efforts, faculty members Bashaw, Kirk and Starzyk earned Cal Poly’s 2017-18 Service Learning Faculty Team Award. Cal Poly President Jeffrey D. Armstrong presented them with the award at a university ceremony in May. ■





# LEARNING



**ABOVE:** Student Anugrah Gupta takes the steps leading to the Swayambhunath, also known as the Monkey Temple.

**RIGHT:** The Kathmandu skyline still shows damage sustained by the 2015 earthquake.

**OPPOSITE, TOP:** The visitors from Cal Poly explore the Himalayan foothills.

**OPPOSITE, BOTTOM:** Jon Peelen (left) and Cory Ihnotic ponder the Boudhanath Stupa in Kathmandu.





RICH CULTURAL EXPERIENCES AND SCENIC ADVENTURES REWARD STUDENTS AND FACULTY WHO VISIT NEPAL TO HELP REBUILD SCHOOL

# GROUND S

Fifteen Cal Poly architectural engineering (ARCE) students continued SESH's (Structural Engineering Students for Humanity) longstanding commitment to service — this time helping to rebuild a historic secondary school damaged by an earthquake in 2015 in Kathmandu, Nepal.

The students, along with Department Head Al Estes and Professor Pamalee Brady, made the two-week trip in late August 2017. The first week was devoted to humanitarian work; the second week was spent on cultural tours and exploring Nepal.

Fourth-year ARCE major Tia DeHarpport, administrative leader of SESH at the time, handled many of the pre-trip details, from selecting which students would go to arranging flights and hotels, and even planning the weeklong trek into the Himalayan foothills.

Before they left, the students raised more than \$10,000 to donate to the school rebuilding effort. Longtime friend of the ARCE Department Ashraf Habibullah, founder and president of Computers and Structures Inc., donated \$25,000 to cover the students' travel costs, including airfare and accommodations.

The focus of the students' work was the Patan Higher Secondary School — the second oldest school in Nepal and a beloved monument in the community. The students partnered with Miyamoto Relief, a nonprofit agency working with Nepal's Department of Education, to repair and seismically strengthen the school.

The students wasted no time getting to work. "The day after we arrived, Dr. Kit







Miyamoto gave us information on the project and a list of tasks to complete,” DeHarpport said. “Those tasks included as-built drawings of the school buildings, plans detailing all of the building damage, a demolition plan of areas beyond repair, and a retrofit scheme for fixable areas.”

“By week’s end, we had completed all the tasks to the best of our abilities and presented our findings to Miyamoto employees and a few local Nepali educators,” DeHarpport continued.

### THE STUDENTS

With the exception of Erin Dupree, who graduated in fall 2017, the students who went were fourth-year ARCE majors. Listed alphabetically, they are: Stella Bates, Michael Blanchard, Kyle Chase, Jiamin Chen, Erica Croft, Tia DeHarpport, Anugrah Gupta, Cory Ihnotic, Abby Lentz, Brooke Lipsey, Jiaming Liu, Jerry Luong, Jon Peelen and Tanya Wohlfarth.

After that intense week, the students, Estes and Brady embarked on a weeklong trek to the Himalayan foothills. While they expected to find adventure, some found a little more than they had bargained for.

“One morning, we boarded three helicopters, all of which were taking off at different times,” DeHarpport said. “Only one group made it to our drop-off location, however, due to weather problems. The other two groups of students — including me — were dropped at a different location. Our pilot explained that we would have about a 20-minute walk to meet up with our team.

“After getting directions, we walked through a steep river, climbed uphill for four hours, and finally made it to the location that we were told would take us 20 minutes to find,” DeHarpport continued. “Luckily, everyone was adaptable and patient.”

“The trip was fantastic,” Estes said. “We were all outside our comfort zones and ready for an adventure. Kit Miyamoto was brilliant; he gave the students a month of work to do in a week just to see how they would perform. The students had to self-organize and use everyone’s efforts to get it done. The flight around Everest, the tours of the Hindu and Buddhist temples, and the grueling trek created a life-altering event. We cannot be more grateful to Ashraf for his 11th-hour sponsorship of this trip.”

The two-week experience deepened DeHarpport’s resolve that she is in the right major and the right university. “I loved realizing how valuable our knowledge is as Cal Poly ARCE students,” she said. “It was an incredible feeling to realize that it is wanted worldwide and that it can help keep people safe.” ■



**LEFT:** Assessing the school’s condition (from left) are Stella Bates, Professor Pamalee Brady, Michael Blanchard and Cory Ihnotic.

**ABOVE:** Brooke Lipsey (left) and Tanya Wohlfarth at Patan Higher Secondary School.





# THEY'RE MAKING A DIFFERENCE

## A RECORD NUMBER OF ARCE STUDENTS PARTNER WITH JOURNEYMAN INTERNATIONAL IN GLOBAL HUMANITARIAN WORK

**A** school in Malawi. A library in the Dominican Republic. A fish farm in Rwanda. Those are just some of the projects that a record 18 Cal Poly architectural engineering (ARCE) students worked on in 2017-18 with the nonprofit Journeyman International (JI).

Founded in 2009 by alumnus Daniel Wiens (Construction Management, '09), JI aims to design safe, sustainable buildings for people in need; provide a valuable service to humanitarian organizations; offer university students the opportunity to design projects; and combat global poverty and ecological destruction by bringing green infrastructure to the developing world. JI is partnering with a dozen universities on projects in over 40 countries.

"The primary objective of JI is to inspire and train future humanitarian designers," Wiens said. "These opportunities are showing Cal Poly students how powerful their skillset is to blessing the world."

**ABOVE:** Tommy Sidebottom and Erica Croft help build a home in the Dominican Republic for a family who lost theirs in Hurricane Maria.

### A CLINIC IN THE DOMINICAN REPUBLIC

Senior Tommy Sidebottom and Erica Croft (ARCE, '18) helped plan and design a health clinic in the Dominican Republic, spending most of their time in Villa Tapia, about an hour outside Santiago. They teamed up with fifth-year Cal Poly architecture major Griffin Chierici and two JI representatives.

"We spent much of our time on the project site," Sidebottom said, "surveying the property, sketching concepts for the master plan and developing a phasing plan. We also spent two days helping build a house for a single mom and her four children whose home was lost in Hurricane Maria. This was easily my favorite part. It's rewarding to know they have a roof over their heads and a safe place to sleep at night." ►





### PLANNING A SCHOOL IN RURAL MALAWI

Connor Flora (ARCE, '18) and Alex Remiticado (ARCE, '18) spent a week in Lilongwe, Malawi, as part of JI's effort to design a primary school. In preparation, they completed much of the design well before embarking on their journey.

"Three weeks before the trip, we were told to put the design on hold," Remiticado said. "Certain aspects might have to be changed depending on the materials available locally. It was important for us to see how structures in that part of the world were built. This experience allowed us to see how things are done elsewhere."

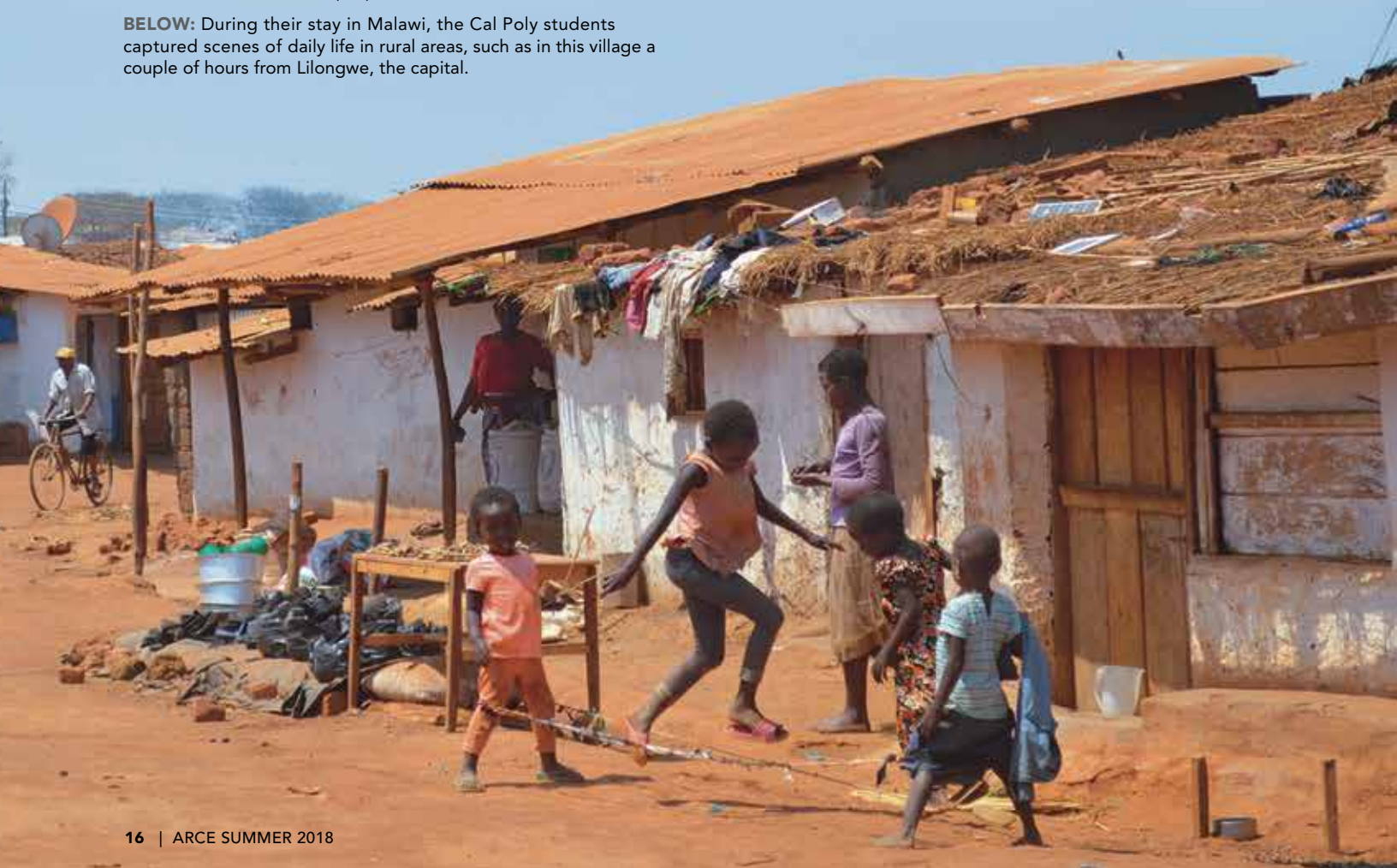
Flora and Remiticado said their decision to work on a humanitarian venture to satisfy their senior project requirement was an easy one. "I could've done a PowerPoint presentation — something I'd forget in a few years — or I could do something that would make a difference," Flora said. "This school will do the most good for the most people."

Remiticado said it gave him an opportunity to help many deserving people for many years. "Malawi is called 'the warm heart of Africa.' It's one of the poorest nations in the world, yet its people are among the world's friendliest."

Flora and Remiticado appreciate the trip's hands-on learning opportunity. "This was the total embodiment of Learn by Doing," Flora said. "We took everything we learned at Cal Poly and applied it to the real world."

**ABOVE:** Alex Remiticado (left) and Connor Flora

**BELOW:** During their stay in Malawi, the Cal Poly students captured scenes of daily life in rural areas, such as in this village a couple of hours from Lilongwe, the capital.







### THIRD TIME'S A CHARM

Erika DiLeva (ARCE, '17) learned firsthand the benefits of patience and persistence. As a student, she had signed on with JI to work on an orphanage in Peru. When that project stalled, she volunteered to help build phase two of a library in Bali, Indonesia.

"Two days before traveling, the client decided to take a different direction, and there was no longer a project for me in Bali," DiLeva said.

But after four months of planning, DiLeva couldn't turn down the opportunity to travel to Bali. And so she went, spending a week there in September 2017. She later completed her senior project working with JI on a library for a vocational campus in the Dominican Republic.

DiLeva's desire to help others stems from sociology classes that opened her eyes to the "vast global inequalities that extend beyond our immediate communities." She is compelled to meet the social responsibility that she believes comes with her chosen profession.

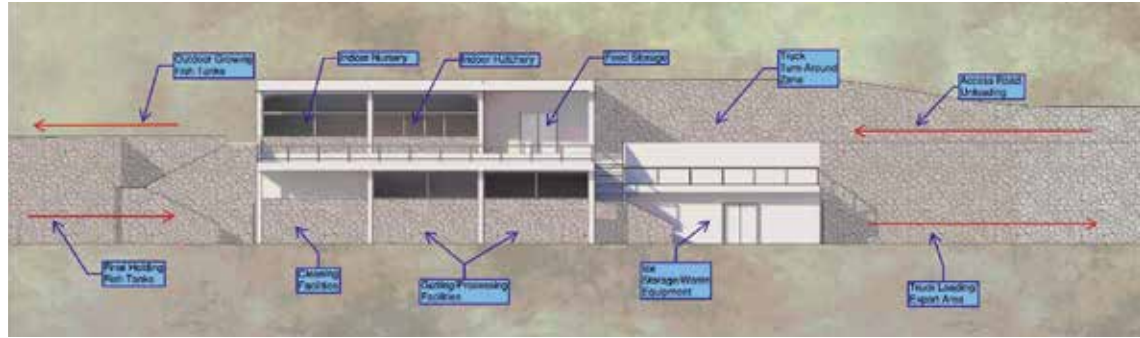
"There's a responsibility for architects and related professionals to create better places," she said. "As a member of society, I'm responsible to affect the quality of life locally and globally. This experience confirmed my purpose as an engineer." ►

**RIGHT:** Erika DiLeva (back, center) with her host family and fellow Cal Poly students Norris Cooper (left) and Alex Remiticado (right).

**ABOVE:** DiLeva enjoys the view from her cottage in Bali.







## GONE FISHING

Dennis Johnston (ARCE, '17) got a late start meeting up with his JI team in January 2017 to work on the Bihongora Women's Aquaculture Cooperative Program — a fish farm — in Rwanda, Africa. Bad weather delayed his flights, causing him to miss half his trip. That delay, however, turned into a blessing, providing Johnston with some of his most memorable experiences.

"When I finally landed in Rwanda, I was met by Faith and Ismail, our client's employees who were to take me to my team halfway across the country," Johnston said. "I felt welcome and safe, even though I was hours away from my team, thousands of miles from my home."

In a hired taxi, the three departed for Musanze, several hours north. "My guides made me feel at home," Johnston said. "We talked about the genocide they had witnessed as kids. We talked about cuisine, culture, government and politics. We talked as if we had been friends for years."

During the ride, Johnston's preconceived notions about Rwanda were shattered. "I was ashamed of having strong opinions without any knowledge to back them up. Before I left the U.S., people warned me to be careful in such a chaotic country. But I felt safer in Rwanda than almost any other country I've visited," he said. "Rwanda is a social and economic leader in Eastern Africa."

## HELPING FROM AFAR

Serina Zepeda (ARCE, '18) was unable to visit her project site — a primary school near Bulawayo, Zimbabwe — but she was still able to contribute by designing a portion remotely.

"As the structural engineer, I was in charge of the structural calculations and needed to fully understand confined masonry as a structural system," she explained. "I came away with a better understanding of the international codes and how different countries take advantage of them."

She was thrilled to be able to complete the design project for an actual client in need. "It warms my heart to know I was able to use the skills I learned in college to help others," Zepeda said.

**TOP:** Dennis Johnston with a friend, and a rendering of the fish farm.

**LEFT:** The JI team visits the Bihongora River in Rwanda, where the project will be built.



## CREATING A COFFEE COCOA CO-OP

Anugrah Gupta (ARCE, '18) spent much of winter break 2017 in Rwanda, working on the structural design component of The Virunga Coffee Cocoa Co-op.

During his trip, Gupta was able to evaluate his project site and meet with local Rwandans — the main motivation for his dedication to humanitarian work. While there, he visited the Rwandan Genocide Memorial, where some 250,000 people are interred.

"This experience — at the beginning of my trip — was a major factor in my emotional attachment to Rwandans," Gupta said. "I noticed a great sense of pride among the people, whose focus was more on overcoming the losses rather than grieving them."

When he returned to the U.S., Gupta and Caleb M. Azevedo (ARCE, '18) completed the framing design of the complex's major building: a community center.

Gupta feels a great sense of appreciation for the culture and people of Rwanda and is passionate about helping the country. Rwanda is leading the way in developing countries by building locally and sustainably.

"Improved education has led to advancements in construction and engineering that promote environmentally conscious strategies to solve problems," Gupta said. "Rwanda is working to create more job opportunities and education and to perpetuate the field of agriculture and the culture of coffee farming."

## REWARDS IN RWANDA AND BEYOND

Rwanda was a popular JI destination this year. Tia DeHarpport (ARCE, '18) and Tanya Wohlfarth (ARCE, '18), along with an architecture and construction management student, designed the structural systems for four buildings at a women's cooperative and opportunity center in Rwanda's Eastern Province. They spent 10 days there, meeting the women who would benefit from the project and gaining firsthand knowledge of local construction materials and techniques.

Sophia Abshire (ARCE, '18) and Stella Bates (ARCE, '18) designed a confined masonry building at Rwanda's Karambo River Vocational Center; fourth-year major Ana Lopez worked on the Rwanda Community Center; and Erin Dupree (ARCE, '17) worked on the Rwanda Hut2Hut.

Lindsey Kuster (ARCE, '17) and Kiersten Bakke (ARCE, '17) worked on a school in Brazil, and Simon Ng (ARCE, '17) helped on a school and orphanage in Cameroon in Central Africa.

*Editor's note: For more information on Journeyman International, visit [www.journeymaninternational.org](http://www.journeymaninternational.org), call 805-952-5469, or email [hello@journeymaninternational.org](mailto:hello@journeymaninternational.org).* ■

**BELOW:** Journeyman International volunteers gather at the coffee cocoa co-op site in Rwanda. From left: Cal Poly students Tia DeHarpport, Anugrah Gupta and Dayna Lake; alumni Daniel Wiens and Carly Althoff, JI president and director, respectively; students Shea Menzel and Amanda Stahler; alumna and JI volunteer Mia Shepard; a JI worker; and student Tanya Wohlfarth.





EXPERIENCES ABROAD

# RUINS

## TELL THE STORY

STUDENTS TRAVEL TO  
MEXICO TO STUDY  
EARTHQUAKE  
DAMAGE





**T**wo Cal Poly architectural engineering (ARCE) students — one undergraduate and one graduate — experienced Learn by Doing in Mexico City while performing earthquake reconnaissance after the Sept. 9, 2017, temblor struck central Mexico.

One month after the magnitude-7.1 tremor, fourth-year student Rachel Chandler was there conducting immediate response investigations and assessing the impact on reinforced concrete structures. Four months later, graduate student Lauren Benstead traveled there to gather additional data to complement Chandler's investigations.

The collaborative research project, funded by a National Science Foundation RAPID grant, included Cal Poly ARCE Assistant Professor Anahid Behrouzi and experts from several universities across the U.S.

Chandler recognized the opportunity as a possible career game-changer. "I learned firsthand about post-earthquake damage," she said. "I saw different types of structural failures and gained insight on how they could be restored, retrofitted and prevented.

"It was important we track essential data about the buildings that can later be analyzed to evaluate the current seismic provisions for reinforced concrete building codes used in the U.S.," Chandler continued.

Benstead visited Mexico in January, putting in 14-hour days to help perform ambient vibration testing to examine the dynamic response of damaged structures. She was well prepared for the work, thanks to Associate Professor Peter Laursen.

"I introduced Lauren to the principles and practicalities of building vibration measurements so that she could prepare the equipment necessary for measuring 16 simultaneous signals," Laursen said. "She meticulously tested and labeled all accelerometers, cables and data acquisition devices."

Preparation and testing a building is a six- to eight-hour process in which strategically positioned accelerometers collect data for up to 90 minutes.

"The sensor set-up for ambient vibration testing seems straightforward: position accelerometers, plug them into their respective channels, run a sensor-data acquisition-systems check, and sit back while the data records," Benstead said. "In reality, it's time-consuming work."

**LEFT:** Rachel Chandler conducted immediate response investigations and assessed the impact on reinforced concrete structures a month after a magnitude-7.1 earthquake in Mexico.



**ABOVE:** Lauren Benstead helped perform ambient vibration testing to examine the dynamic response of damaged structures.

Benstead describes her work as "very specific, but part of a much larger effort by structural engineers to understand the behavior of a diverse combination of building and structure types, soil structures, and ground motions in order to improve the field of structural engineering. All the data we captured and conclusions we came to will hopefully work in some capacity to inform future codes and structural designs," she said.

Now back on campus pursuing a master's degree, Benstead continues her work in the measurements from one of the buildings in Mexico City. "She is establishing a computational model that will provide the basis for evaluation of the field measurements," Laursen said.

Assistant Professor Behrouzi, whose expertise includes the seismic behavior of reinforced concrete structures, serves as an advisor to the Cal Poly students.

"In training structural engineers, there is no comparison to observing earthquake damage, learning from local engineers, and speaking to community members in an affected region," Behrouzi said. "In-field research exposes students to significant technical and social impacts of an earthquake, informing their seismic design philosophy in a unique and profound way."

Read more about these research efforts at: <https://arce.calpoly.edu/mexico-city-reconnaissance> and <https://arce.calpoly.edu/mexico-city-earthquake-investigation>. ■



# Celebrating ExCEED

## AL ESTES CO-EMCEES TEACHING PROJECT'S 20TH ANNIVERSARY GALA

Architectural Engineering (ARCE) Department Head Al Estes was front and center as co-emcee at the 20th anniversary celebration of the American Society of Civil Engineers' Project ExCEED (Excellence in Civil Engineering Education), held in June.

More than 100 people attended the gala celebration, held during the American Society for Engineering Education's (ASEE) annual conference in Salt Lake City.

At a conference session, Estes also presented a paper, "Celebrating 20 Years of the ExCEED Teaching Workshop."

**BELOW:** Department Head Al Estes (left) is joined by prominent engineering educators (from left) Tonya Nilsson, Steve Ressler, Camilla Saviz, Norm Dennis, Monica Palermo, Tom Lenox and Jenny Rutherford.

The ExCEED workshops are designed to improve the teaching abilities of engineering educators. During the intense weeklong workshops, 24 participants from universities nationwide attend seminars, demonstration classes and participant classes. Attendees are divided into six groups, and each participant teaches three classes in front of a senior mentor, assistant mentor and peer participants. An extensive assessment follows.

The anniversary event celebrated the completion of 41 separate ExCEED workshops, which have produced 982 graduates from 267 universities.

"These workshops provide a sustained, far-reaching and positive impact on generations of engineering students," Estes said.

Cal Poly has sent more professors — 18 — than any other U.S. university.

Professors from the ARCE, Civil Engineering and Construction Management departments have attended.

ARCE faculty members who have taken part include Anahid Behrouzi, Pamalee Brady, Jim Guthrie, Peter Laursen, John Lawson, Abe Lynn, Vicky May, Cole McDaniel, James Mwangi, Jill Nelson and Ed Saliklis. Of those, Lawson, Lynn, May and Saliklis have served as ExCEED faculty members.

Estes has served as a faculty member at 29 of the 41 workshops, another statistic that leads the nation.

The 20-year celebration was sponsored by the 10 universities with the largest number of graduates and those whose faculty have benefitted the most from the workshop. ■







## The 'A' Team

2017-18 Architectural Engineering Department faculty and staff members include (above, front row, from left): Erika Clements (staff), Mike Deigert, John Lawson, Adriana Sousa (staff), Jill Nelson, Department Head Al Estes, Brent Nuttall, Anahid Behrouzi and Dahlia Hafez. Back row (from left): Dennis Bashaw, Peter Laursen, Craig Baltimore, Mario Esola, Jessica Meadows, Rob Down, Radu Popescu, Ed Saliklis and Graham Archer. Not pictured: Pamalee Brady, Kevin Dong, Cole McDaniel, James Mwangi, Jessica Napier, Michael Salmon (staff), Erling Smith and Jon Tarantino.

### IN MEMORIAM

## Gene Cole, 86

### ARCE ALUMNUS, PROFESSOR AND INDUSTRY PARTNER

Gene Cole (ARCE, '56), the first person to graduate from Cal Poly's Architectural Engineering program to become a California licensed structural engineer, died Oct. 17, 2017, at the age of 86.

Cole's first job out of college was at Buehler & Buehler in Sacramento. In 1963 Cole and Jimmie Yee paired up to open one of the few structural engineering offices in Sacramento, Cole and Yee Structural Engineers. When Carl Schubert became a partner, the firm's name changed to Cole, Yee, Schubert & Associates, and in 2004, it changed to CYS Structural Engineers Inc. In 2013, Art Ross, CYS president and CEO, started the CYS Eugene Cole ARCE Scholarship, which continues today.

An active member in the Structural Engineers Association of California (SEAOC), Cole served as state vice president in 1969 and state president during the Mexico City earthquake in 1985. He was elected to the SEAOC College of Fellows in 1996.

A leader in earthquake damage assessment work, he assisted in California, Mexico City and Yerevan, Armenia. Even in retirement, Cole continued his work, supervising the reconstruction of earthquake-damaged structures in Erzincan, Turkey, from 1994 to 1995. Upon his return to the U.S., he taught in the ARCE Department during winter 1997, earning the Distinguished Professor Award from the College of Architecture and Environmental Design. ■



Gene Cole





## PETER LAURSEN EARNS A PROMOTION

Peter Laursen, who joined the Cal Poly architectural engineering faculty in 2007, was promoted to full professor beginning in the 2018-19 academic year.

Laursen grew up in Denmark and returned there for a “difference-in-pay” leave in the 2013-14 academic year. He worked as a structural engineer consultant in the Department of International Bridges for COWI A/S in Copenhagen.

His areas of specialization include structural analysis and design of concrete structures, earthquake engineering and bridge engineering.

For Laursen, the rewards of teaching don’t stop once his students graduate.

“The most rewarding aspect of teaching at Cal Poly is to watch the students grow through their tenure in the department and see them succeed in their future endeavors,” Laursen said. “For example, I recently met ARCE graduate Shannon Abeling at the European Conference on

**ABOVE:** Professor Peter Laursen

Earthquake Engineering in Greece, where she presented a paper on seismic vulnerability of New Zealand churches. She is now finishing up her doctorate at the University of Auckland in New Zealand.”

Department Head Al Estes said, “Peter totally deserves this promotion. His research has been collaborative, relevant and well published. Peter is an outstanding classroom teacher and has done more work in our laboratories than any other faculty member. I could not be happier for him.”

A professional engineer and a licensed civil engineer in the state of California, Laursen earned a Master of Science degree in engineering sciences from UC San Diego and a doctorate in civil engineering from the University of Auckland, New Zealand. ■

## RETIRED PROFESSOR ERLING SMITH PLANS RETURN THIS FALL

Architectural engineering (ARCE) Professor Erling Smith can’t quite call it quits. After 32 years teaching at the University of Connecticut, Smith came to Cal Poly in 2008 as vice provost, serving four years before joining the Architectural Engineering Department as a professor.

He retired from full-time teaching in 2013 yet returned every year to teach under the Faculty Early Retirement Program, which allows faculty to teach part time for up to five years.

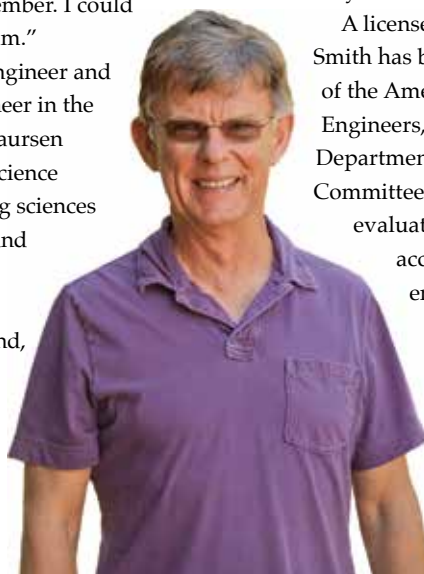
Those five years ended with the 2017-18 academic year, however, that did not put an end to Smith’s teaching career. “I’ve applied to be a part-time lecturer,” he said, and he expects to be back in the classroom this fall.

“I started teaching as a graduate student assistant, teaching in labs, showing students how to work machines and explaining theory,” Smith said. “I chose the teaching profession because I really like the one-on-one interaction with faculty and students.”

ARCE Department Head Al Estes is grateful for Erling’s continuing commitment. “I met Erling when he was chair of the Engineering Department at UCONN and I was teaching at West Point. There was a time during his tenure at Cal Poly when Erling served as both the vice provost for strategic planning and the interim dean of engineering. It was nice having such a seasoned veteran teaching in ARCE.”

Smith earned a bachelor’s degree in civil engineering from the University of Leeds and a doctorate in engineering science from the University of Durham, both in the U.K.

A licensed professional engineer, Smith has been a lifetime member of the American Society of Civil Engineers, serving as a member of its Department Heads Council Executive Committee. He also served as an evaluator for ABET, the national accreditation agency for engineering programs. ■



**LEFT:** Professor Erling Smith





**ABOVE:** Michael Deigert brings years of professional practice as well as considerable welding skills to the ARCE Department.

**RIGHT:** Vince Pauschek (right) oversees the lateral testing of a steel moment frame in Michael Deigert's Steel Design Lab.



# Welcoming New Faces

## STRUCTURAL ENGINEER, ALUMNUS MICHAEL DEIGERT JOINS ARCE FACULTY

With more than 25 years of professional experience, Cal Poly alumnus Michael Deigert (Civil Engineering, '92) brings the real world of structural engineering to his classes in the Architectural Engineering (ARCE) Department.

Deigert joined the ARCE faculty in fall 2017. He teaches Introduction to Steel Design, Steel Design Lab, and the Fundamentals of Engineering Statics and Materials for ARCE.

Deigert said he seized the opportunity to teach in the ARCE Department. "Within the structural engineering community, it is well known that Cal Poly offers one of the best — if not the best — engineering programs for structural engineers," he said.

His first year of teaching has led to some unexpected discoveries.

"I was surprised to learn how much work is involved in preparing lectures and how stressful it can be," Deigert said. "Presenting the lectures can be very rewarding; I enjoy interacting with the students and finding ways to get them

to open up, ask questions and enjoy the subject matter."

"Michael made a difference during his first year," Department Head Al Estes noted. "He embraced hands-on learning by creating and testing a full-scale moment frame as part of his Steel Design Lab." The expenses for the experimental testing were covered by the Parent's Learn by Doing Fund.

Most recently Deigert worked for Peoples Associates Structural Engineers in Pleasanton, California. After graduating from Cal Poly, he earned a master's degree from San Jose State University.

## MEET TECH VINCE PAUSCHEK, ELECTRO-MECHANICAL EXPERT

Cal Poly's College of Architecture and Environmental Design (CAED) has added Vince Pauschek, a skilled electro-mechanical specialist with extensive experience, to its roster of lab technicians. He succeeds recently retired Ray Ward.

Pauschek began his job at Cal Poly in August 2017 with a solid 20 years of experience under his (tool) belt. He had just completed a five-year stint as an

instrumentation and control/avionics technician at the Space Exploration Corp. (SpaceX) at Vandenberg Air Force Base. He has also worked for AT&T, California Audio Labs and the U.S. Marine Corps.

While the scope of his job at Cal Poly includes helping faculty and students in the entire CAED, he spends a fair amount of time working with students in the ARCE Department's materials and testing labs.

"I interact with students daily, teaching them shop safety and helping them work on and test senior projects. The job isn't what I expected; it's more hands on, and I really enjoy it," Pauschek said. "There is always something new to work on. I especially enjoy fabricating new projects and labs. I've worked in many electro-mechanical fields and bring a variety of experience to our support shops."

ARCE Department Head Al Estes said the transition in lab technicians has been far more seamless than anticipated, given Ward's value to the department. "It's a tribute to Vince's vast knowledge in his field, his positive outlook, and his willingness to try new things and be flexible. We are very lucky to have him." ■



# Score!

## ARCE DEPARTMENT EARNS ASCE WALTER LEFEVRE AWARD



Cal Poly's Architectural Engineering (ARCE) Department earned the 2018 American Society of Civil Engineers (ASCE) Walter LeFevre Award in recognition of the department's emphasis on industry practice, licensure, ethics and professional responsibility.

The organization also cited the department's hands-on, Learn by Doing methodology and the number of licensed professionals on the faculty.

**LEFT:** Al Estes receives the Walter LeFevre Award for ARCE from ASCE President-elect Robin Kemper (left), and Camilla Saviz, chair of the ASCE Committee on Education.

The award, established in 2007, is given annually to an ABET-accredited civil, architectural or construction engineering program. This is the first time Cal Poly's ARCE Department has won the award, although the program did receive an honorable mention in 2016 and 2017. ASCE President-elect Robin Kemper presented the award to ARCE Department Head Allen Estes at the national Civil Engineering Department Heads Conference in Philadelphia on May 30.

"I knew Walt LeFevre and am proud to win the award that bears his name," Estes said. "Our program mirrors those values that Walt represented and is the ideal program to win this award. Persistence pays off." ■



## Outstanding Advisors

The Architectural Engineering Department appreciates the industry partners who generously volunteer their time and expertise to serve on the ARCE advisory board. 2018-19 members are **front row** (sitting, from left): Michael Cochran (Thornton Tomasetti); Donna Clandening (AC Martin); and Michelle Jones (RIM Architects).

**Middle row** (from left): Steve Abernethy (sitting, Square Trade); Michael Parolini (Smith Structural); Shawna Peterson (Arup); Elisa Suarez (SpaceX); Jennifer Hiatt (MHP); Dirk Bondy (Seneca Structural); Sarah Storelli (IBM); Marc Guberman (Foster + Partners); Department Head Al Estes; and Consuelo Crosby (Edifice Complex). **Back row** (from left): Chris Haight (Hope Amundson); Bill Rader (Buehler & Buehler); Bryan Seamer (LPA); Ron LaPlante (Division of State Architect); and Steve Patton (ZFA Structural).





## INDUSTRY PARTNERS

# SidePlate Systems

## COMPANY SPONSORS LAB WITH \$50,000 COMMITMENT

SidePlate Systems President and CEO Henry Gallart was on hand at a dedication ceremony for the Architectural Engineering (ARCE) Department's newest named lab: the SidePlate Lab. Gallart presented ARCE students Cory Ihnotic and Tia DeHarpport, the Structural Engineers Association of California (SEAOC) student president and vice president, respectively, with a \$50,000 check to fund the lab for five years. The ceremony also consisted of words of thanks, a plaque unveiling, a cake-cutting and lunch.

College of Architecture and Environmental Design Dean Christine Theodoropoulos and SidePlate Western Regional Business Manager and Cal Poly

alumnus Ryan Smith (ARCE, '05) joined other members of the campus community and employees of SidePlate Systems at the event, which took place fall quarter 2017.

Improvements to the lab included new cutting mats on the table tops, new paint and a unique moment-frame model in the room that displays the SidePlate product.

The ARCE Department now boasts six sponsored labs, which are supported by partner companies and individuals who donate \$10,000 per year for five-years. The money funds upgrades, supplies and materials, giving students access to the cutting-edge technology that is vital to a Learn by Doing education.

"We are grateful to SidePlate for sponsoring this lab," Department Head

**ABOVE:** SidePlate Systems President and CEO Henry Gallart (left) presented ARCE students Cory Ihnotic and Tia DeHarpport with a \$50,000 check to fund the SidePlate Lab for five years.

Al Estes said. "I was so impressed that a SidePlate crew led by none other than Henry Gallart himself traveled to Cal Poly over a weekend to personally install the wooden SidePlate model in the lab — and they had fun doing it."

SidePlate Systems, headquartered in Mission Viejo, California, combines patented steel connection technology, software tools and structural engineers to deliver innovative and economical building solutions. ■





# The Berridge Family

## \$50,000 DONATION SPONSORS COMPANY'S MATERIALS LAB FOR ANOTHER FIVE YEARS

The Architectural Engineering (ARCE) Department rededicated the Berridge Materials Laboratory on June 15, thanks to a second generous \$50,000 sponsorship commitment by Jack Berridge (ARCE, '59) for an additional five years.

Berridge first sponsored the lab in 2011. It was initially dedicated in conjunction with his being named the College of Architecture and Environmental Design's Honored Alumnus.

"The rededication ceremony coincided with the graduation of Jack's grandson Christopher Berridge (ARCE,

'18) this spring," said ARCE Department Head Al Estes. "It was great to see the Berridge family back on campus."

Christopher Berridge's parents, Mark and Helen Berridge, attended the dedication along with 15 other family members. Unfortunately Jack Berridge was not able to attend the event; however, his daughter, Kim Gillum, presented the \$50,000 check to Estes and spoke on behalf of the Berridge family.

CAED Dean Christine Theodoropoulos provided remarks and thanked the Berridge family for their generous

**ABOVE:** Members of the Berridge family celebrate the lab rededication with Department Head Al Estes. From left: Helen Berridge, Patrick Berridge, Luke Berridge, Matthew Berridge, Christopher Berridge, Al Estes, Mark Berridge, Kim Gillum, Samuel Berridge (behind Kim), Grant Gillum and Jack Gillum.

support. After a cake-cutting ceremony, guests enjoyed J. Lohr wine and pre-dinner hors d'oeuvres.

Improvements to the lab include new tables, two new Tinius Olsen testing machines, and a new computer station with large monitors and new furniture. ■



# Simpson Strong-Tie

## COMPANY'S \$50,000 DONATION RENEWS FIVE-YEAR COMMITMENT TO SPONSOR LAB

The Architectural Engineering (ARCE) Department rededicated the Simpson Strong-Tie Design Lab in April with a ceremony to celebrate the company's \$50,000 sponsorship commitment for an additional five years.

The ceremony was held in conjunction with the annual Simpson Symposium at Cal Poly, which includes presentations and hands-on exercises for ARCE, construction management, civil engineering and architecture students.

Simpson Strong-Tie Chief Operations Officer Ricardo Arevalo (ARCE, '85) traveled to San Luis Obispo for both activities. He presented the \$50,000 check to Cory Ihnotic, president of Cal Poly's student chapter of the Structural Engineers Association of California (SEAOC).

The rededication ceremony included speeches, a ribbon-cutting, cake-cutting, and a barbecue tri-tip lunch prepared by members of the SEAOC student chapter.

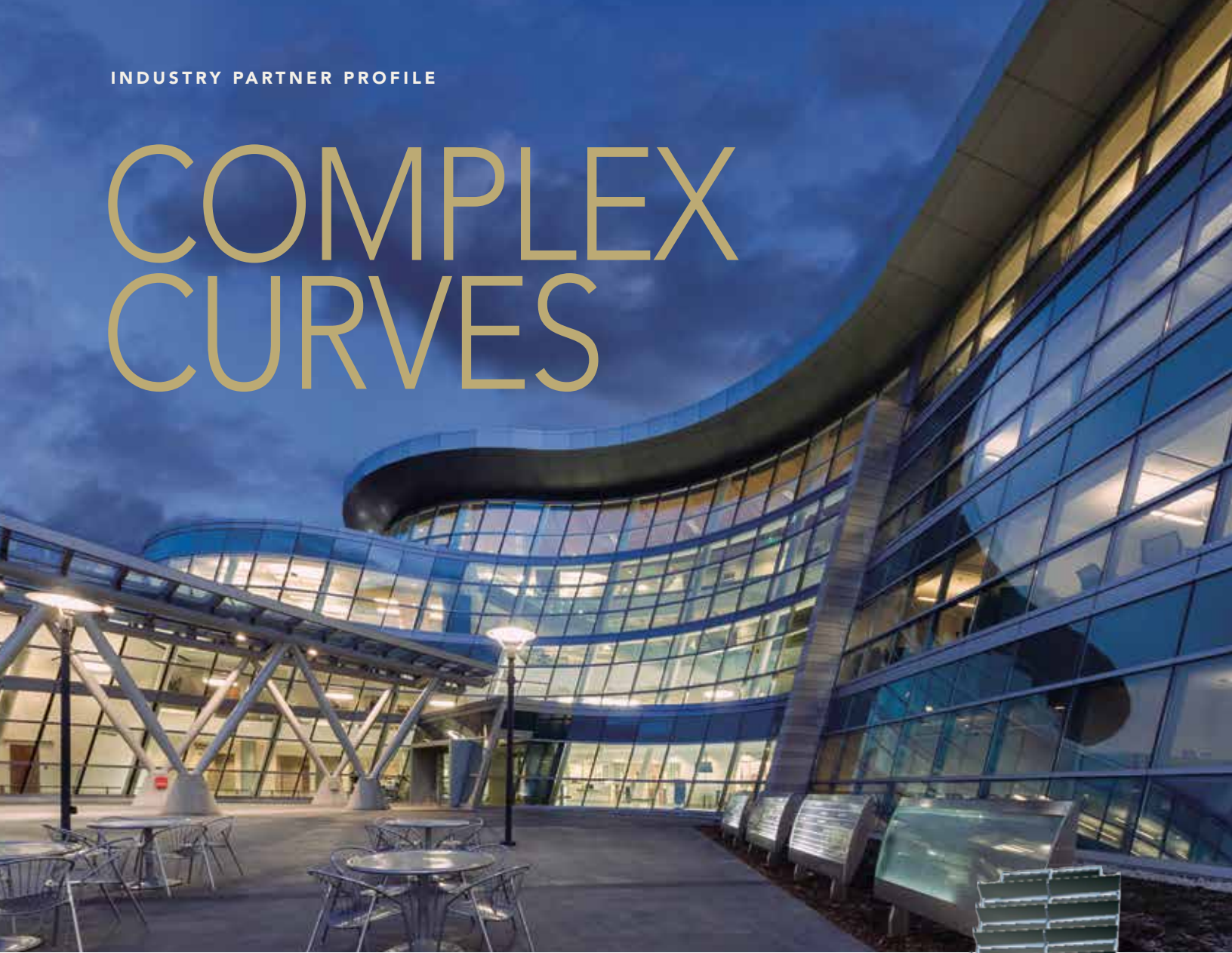
The dedication also honored the impending retirement of Alan Hanson, the Simpson-Cal Poly outreach coordinator for the past 23 years. The ARCE Department presented Hanson with a retirement gift in gratitude for his years of extraordinary support. ■



**RIGHT:** Simpson Strong-Tie's Alan Hanson (left) and Ricardo Arevalo celebrate the rededication of the Simpson Strong-Tie Lab, while colleague Darwin Waite commemorates the occasion.



# COMPLEX CURVES



## EXUDING ENGINEERING FINESSE, HOLMES STRUCTURES MAKES WAVES GLOBALLY WITH HELP FROM ALUMNI

**H**OLMES ENGINEERS solve complicated problems by striving for elegance, performing their best when faced with different design challenges.

Internationally, Holmes Structures employs more than 400 people across engineering disciplines. Its offices in San Francisco and Los Angeles include many Cal Poly architectural engineering (ARCE) alumni. We spoke with several in different stages of their careers about the projects driving them forward.

**ABOVE:** The curvaceous Salt Lake City Public Safety Building is seismically resilient, says Holmes Principal Dick Dreyer, an architecture alumnus who worked on the project.

Senior Engineer Jonas Houston (ARCE, '10; M.S., ARCE, '11) has immersed himself in non-linear analysis for projects around the world, including 56 The Terrace, a seismic upgrade of a 21-story concrete tower a quarter mile from a major fault line in Wellington, New Zealand.

"I utilized our in-house computer software to construct a 3D building model





and subjected the building to historic earthquakes for the building evaluation,” Houston said. “The seismic retrofit used non-linear viscous dampers as energy dissipation devices. Holmes collaborated across subsidiaries, providing the structural engineering, fire engineering and product testing. Holmes Solutions tested new bespoke dampers for the project.

“The seismic retrofit was tested in 2013 when a magnitude 7.8 earthquake hit Wellington,” Houston continued. “It proved successful and was hailed by building tenants and officials for its resiliency.”

Project engineers Mary Kretschmar (ARCE, '14) and Gina Kope (ARCE, '15; M.S., ARCE, '15) are champions of Holmes Structures' pioneering use of mass timber — specifically cross-laminated timber (CLT) in California.

Kretschmar's effort contributed to the Biomass Boiler Building in Plumas County, the first structure in California fully designed and constructed with CLT for both its gravity and lateral systems.

“The lateral resistance is commonly provided by a code-compliant steel or concrete system partly because CLT wall panels aren't formally adopted by the building code,” Kretschmar said. “The benefit of the material is its speed of construction, making CLT more cost competitive than traditional light-framed timber construction.”

Kope helped design the largest mass timber building in North America. “The tech campus's hybrid system is unique because of the complexities that come with mixing materials like steel and mass timber. Each building component responds differently in a seismic event, which we had to account for in our analysis,” she

**LEFT:** A non-linear analysis model of 56 The Terrace, a seismic upgrade project in New Zealand, was rendered by Senior Engineer Jonas Houston, an ARCE alumnus. IMAGES COURTESY HOLMES STRUCTURES

## AN ALUMNI-RICH COMPANY

Other ARCE graduates working at Holmes, listed alphabetically, include: Structural Designers Sophia Abshire ('18), Katie Eberle ('17) and Nicole O'Hearne ('15); Project Engineer Georgine Mooney ('15); and Senior Engineer Leslie Zerbe ('07).

explained. “The green roof, which includes large trees, was also a challenging aspect of the design due to the increased demands the soil weight induces on the CLT structure.”

Associate Principal Erik Kneer (ARCE, '01) advocates for using prefabrication construction. “It involves building major components in a factory-controlled environment,” he said. “Prefabrication is revolutionizing the way we deliver buildings. It can deliver huge schedule savings, produce less waste and offer a higher quality outcome, resulting in a quieter and cleaner site while being cost competitive.”

Over his 30-plus years with Holmes, Principal Richard “Dick” Dreyer (ARCH, '74) has been impressed with how prepared Cal Poly ARCE graduates are to enter the workforce. He is proud to spearhead efforts in improving seismic resiliency for communities at large. Dreyer was involved in the engineering of the Salt Lake City Public Safety Building, designed to be operational after a maximum credible earthquake (MCE) expected to occur once in approximately 2,500 years.

Senior Engineer Adam Azoifeifa (ARCE, '07; M.S., ARCE, '08), a member of ARCE's first master's graduating class, manages high-end residential projects with Holmes Structures. Azoifeifa appreciates compelling designs that merge architecture with engineering. “That is literally what we do here in the residential studio,” he said. Whether devising ways to implement extended cantilevers, a gravity-defying



**ABOVE:** Gina Kope, an ARCE alumna, works as a project engineer at Holmes Structures.

butterfly roof, or exposed framing with hidden connections, he finds that “ARCE grads are a natural fit for our residential practice, given their unique training in the practical applications of engineering.”

For more on Holmes Structures, go to: [holmesstructures.com](http://holmesstructures.com). ■

PREVIOUSLY PROFILED (IN ORDER OF MOST RECENT):  
 • STRANDBERG ENGINEERING • COMPUTER AND STRUCTURES INC. • MHP INC. STRUCTURAL ENGINEERS  
 • J. LOHR VINEYARDS AND WINES • NUCOR CORP.  
 • FLUOR CORP. • KPFF CONSULTING ENGINEERS  
 • DEGENKOLB ENGINEERS • BARRISH PELHAM & ASSOCIATES INC. • JOHN A. MARTIN & ASSOCIATES



California Polytechnic State University  
1 Grand Avenue  
San Luis Obispo, CA 93407-0281



## Towers of Strength

Cal Poly architectural engineering students gained valuable experience participating in the 2018 Earthquake Engineering Research Institute Seismic Design Competition. Each team designed a complex tall building model made from balsa wood that was tested on a shaking table. The 30 student teams were judged on their oral design presentation, their summary poster, and the model's architectural design.

Team members (back row, from left) included: Ricardo Gustavson, Kyle Chase, Mark Wright, Olivia Pepe-Phelps, Julia de Hart, Nick Coburn, Maxwell Snook and Allie Decker. Front row (from left): Brooke Lipsey, Katie Terou, Maja Sagaser, Jenna Williams, Tanya Wohlfarth, Jeret Buerger and Jerry Luong.