

TJC

and ASSOCIATES, Inc.

**Message from
the President**

**Cathedral
Building Artwork**

**TJCAA's Business
Certifications**

- Alameda County Small, Local Emerging Business
- Bay Area Green Business Program, Green Business
- City of Oakland Local Business Enterprise
- California DGS Micro Business (SB (micro))
- Port of Long Beach SBE
- San Diego County Water Authority SBE
- SoCal Network SBE
- CA PUC WBE
- Sacramento Municipal Utilities District (SMUD) SEED Vendor

The TJCAA Quarterly

fall 2015

www.tjcaa.com

**Message from the President,
Gianna Zappettini**

We recently took care of a 105-pound Alaskan Malamute named Kona, and part of his stay involved attending training sessions to improve his skills. We reaped the benefits of those sessions, too. By the end of his training, we were working together as a real team.



TJCAA's engineers and staff members keep up on the latest training opportunities for their disciplines—a benefit to both them and you, our clients, when we are providing our excellent services. We are always willing to assist with projects that utilize our up-to-the-minute professional skills, so give us a call if we can help.

Cathedral Building Artwork



Photo by Gianna Zappettini

On Friday June 26th at the Cathedral Building, home to TJCAA's Oakland Office, the United Nations Foundation held a Ribbon Cutting Ceremony to celebrate the completion of Zio Ziegler's mural on the building. The President and CEO of the United Nations Foundation, Kathy

Calvin, and Oakland Mayor Libby Schaaf spoke at the event, which was part of ceremonies marking the 70th Anniversary of the UN. Ziegler's vibrant, 13-story mural depicts a figure releasing a dove.

Zio Ziegler is a 27-year-old American artist known for his paintings and murals featuring intricate patterns. He has painted large-scale murals in major cities in the U.S., Europe, and Asia. (Zioziegler.com)

Ziegler was quoted by the East Bay Express about the mural, "I think it's really important to make something in a hotbed of change and equality, like in Oakland...You're pulling all these divergent threads together into one melting pot and that's really present here—that's what I want to do with my work."



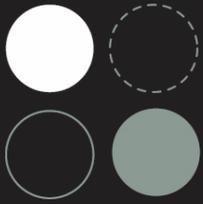
Photo by Jennifer Farmer

The mural is part of the VSCO Artist Initiative that the Athen B. Gallery is curating in Oakland. The Athen B. Gallery's collaborative group exhibition "Condition" includes Ziegler's work, and will be on view until October 2nd (1525 Webster St., athenbgallery.com).

We're proud to help host this example of work by our dynamic art community. Come by and see it sometime!

Copyright 2015 TJC and Associates, Inc. All Rights Reserved

- Structural Engineering • SCADA • Electrical Engineering •
- Instrumentation and Controls • Control Systems Programming •



TJC
and ASSOCIATES, Inc.

Featured
Employee -
Jacqueline
Okubo, P.E.

The TJCAA Quarterly

fall
2015
www.tjcaa.com

Featured Employee - Jacqueline Okubo, P.E., Electrical Engineer



This edition's featured employee is Jacqueline Okubo, P.E., an electrical engineer in TJCAA's Instrumentation, Controls and Electrical (ICE) Group. Jacqui has been a part of the TJCAA family for three years and she has a wide variety of ICE experience, including fiber optic cable allocation, electrical load

studies, and piping & instrumentation diagram layout and development. Her background also includes construction observation on international development projects during an internship in Kenya, where she grew up.

"I always knew I was going to be an engineer," Jacqui tells us. When we asked how she knew, she explained that she was always curious about how things worked. "I took apart everything in the house," she laughs, "including my Dad's radio." She didn't reassemble that one item, Jacqui recalls, because for a very young engineer, "There were too many little screws. Dad was happy that I was curious, but he said he would prefer it if I were curious with something other than his things."

Her father, who was the chief engineer for the National Ministry of Roads and Public Works in Kenya, was a big influence on her career choice and he was happy to feed her curiosity with projects and visits to his workplace and to construction sites. Jacqui moved to the United States when she was 16, and she graduated from UC Davis with a degree in Electrical Engineering in 2012.

For a long time, Jacqui thought she would pursue aeronautical engineering, rather than electrical. "I was 100 percent sure that I was going to work for Boeing building planes." A conversation with her brother, however, influenced her decision to study electrical engineering. He recommended, "Do something very marketable. With aeronautical, you could either work on a plane or a windmill. Electrical engineering would still put you in the scope of working for Boeing."

She chose electrical. Jacqui tells us that while in college she envisioned working in a "research and development, semi-conductor kind of environment," but that her internship experience sparked her interest in consulting instead. She describes her internship work as a mix of hard electrical engineering, project management, and PR, and says that the connection with people and projects made her feel like the consulting field was a good fit.

We are certainly happy that Jacqui gravitated toward consulting. She says, "I love all of the new things I'm learning." TJCAA emphasizes the development of our young engineers, and we are pleased that she characterizes her work atmosphere as "Encouraging! I feel like I'm being encouraged to grow as much as I'm willing to grow."

Jacqui also loves learning in her spare time. "I'm working on learning Spanish now, using Rosetta Stone." She tells us that she also has the benefit of language tips from her Spanish-speaking colleagues at TJCAA, and looks forward to practicing her new language in the future during travels. Jacqui says she is also "getting back into photography," a skill she hopes to apply on her travels, as well. On the next page is an example of her work on her favorite subject.

Copyright 2015 TJC and Associates, Inc. All Rights Reserved

• Structural Engineering • SCADA • Electrical Engineering •
• Instrumentation and Controls • Control Systems Programming •



TJC

and ASSOCIATES, Inc.

The TJCAA Quarterly

fall
2015
www.tjcaa.com

Did you know?



Photo by Jacqueline Okubo

Did you know - What's a VFD?

A variable frequency drive (VFD) is a controller that drives an electric motor, and it can vary the frequency and voltage supplied to the electric motor, allowing the speed of the motor to be controlled anywhere within its operating range. TJCAA has performed numerous projects to retrofit water and wastewater equipment motors with VFDs.

VFDs are also called adjustable speed drives or variable speed drives, and they are useful for equipment where the process requirements call for controlling the speed and output instead of a single, fixed output typical with a constant speed motor. The speed of an electric motor relates directly to frequency (hertz): the faster the frequency, the higher the motor's speeds. In the water and wastewater industry, VFDs may have applications for a variety of equipment including centrifugal pumps, blowers, positive displacement

pumps, and highly accurate chemical metering pumps.

The VFD can adjust the frequency and voltage to meet the requirements of the load on the motor. These adjustments can also result in energy savings if the process variations were being controlled by "burning head" against a modulating control valve. TJCAA's clients have reported energy savings associated with VFDs to be up to 20–50 percent depending on the characteristics of the process. Modifications associated with a VFD retrofit typically include motor replacement, VFD, new instrumentation, and associated changes to the control algorithms.

TJCAA Principal Engineer Paul Giorsetto explains that before designing a new system or a retrofit using VFDs, "We study the anticipated load requirements against the performance of the process. We can then determine whether energy

Copyright 2015 TJC and Associates, Inc. All Rights Reserved

• Structural Engineering • SCADA • Electrical Engineering •
• Instrumentation and Controls • Control Systems Programming •



TJC

and ASSOCIATES, Inc.

Job
Opportunities

Dates to Note

The TJCAA Quarterly

fall 2015

www.tjcaa.com

cost savings are possible. Compared to 'burning head,' retrofits show paybacks of 2 to 5 years." The payback period can also be shortened by utility-sponsored "efficiency by design" programs that often include incentives for installation of retrofit VFD applications.

TJCAA typically performs these studies as part of other process improvements, and there are many good opportunities to improve pumping and motor efficiencies. Please call us to discuss whether VFDs may be a good fit for your new or existing equipment.



TJCAA's sister company, Terrapin Testing, uses a VFD to control a 20-hp blower motor that creates pressure and vacuum on our "window wall." With this VFD, we can control the speed of the motor from 0 to 200 percent in minute increments, which allows us to control the pressure/vacuum applied to a building envelope product, such as a window, during testing. In addition to using pressure/vacuum loads for testing building envelope products for code compliance, TT also subjects building envelope products to water spray and 2x4 missiles for hurricane protection.

Job Opportunities

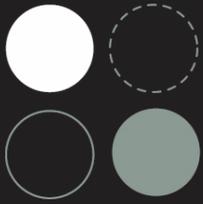
TJCAA is looking for talented and enthusiastic electrical engineers and/or programmers. Please visit our website www.tjcaa.com for further details.

Dates to Note

September 23	The Autumnal Equinox
September 23–October 2	"Condition" Exhibition at the Athen B. Gallery
September 25	Sol at the Point Richmond Music Summer Concerts 6–8 pm
September 26–27	World Maker Faire, New York
October 11–14	ASCE Convention, New York
October 16	Dictionary Day
October 27	111th MLB World Series Begins
November 1	Daylight Savings Time Ends
November 6	Saxophone Day
November 21	118th Big Game: Cal vs. Stanford
December 8	Junius Courtney Big Band at Yoshi's Holiday Show 8–10 pm
December 13–14	Geminid Meteor Shower

Copyright 2015 TJC and Associates, Inc. All Rights Reserved

• Structural Engineering • SCADA • Electrical Engineering •



TJC

and ASSOCIATES, Inc.

TJCAA Fun Fact

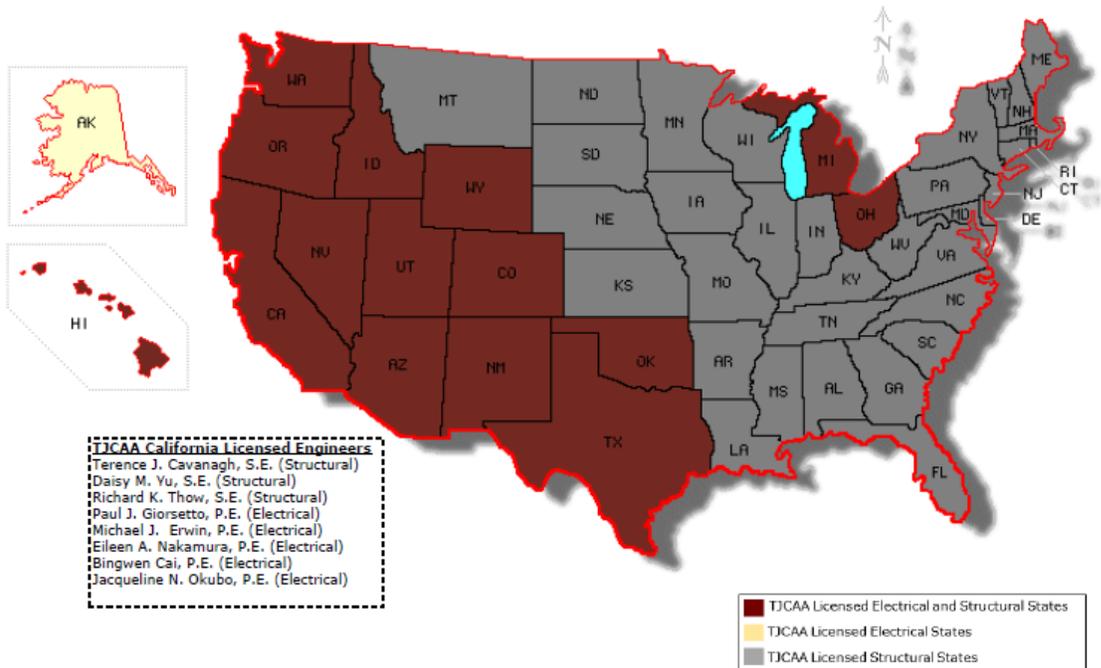
The TJCAA Quarterly

2015

www.tjcaa.com

TJCAA Fun Fact - Licensing

TJCAA lead structural engineer Terry Cavanagh, S.E. is licensed in 49 states! Many of our engineers have multiple licenses. Check out the map below!



Copyright 2015 TJC and Associates, Inc. All Rights Reserved

• Structural Engineering • SCADA • Electrical Engineering •
• Instrumentation and Controls • Control Systems Programming •