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Summer The TJCAA Quarterly

2014
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Message from the President

Industry News - Concrete Compliance with NSF/ANSI Standard 61

TJCAA's Business Certifications

- Alameda County Small, Local Emerging 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
- City of Sacramento SBE
- Sacramento Municipal Utilities District (SMUD) SEED Vendor

Message from the President, Gianna Zappettini



Our office recently went on a "Treasure Hunt" for a company event. Our staff members split into three teams, and each team worked together

to solve the clues before racing around Berkeley to collect the answers. Every team finished in the allotted time with excellent results. If you are "hunting" for a great group to work with on your next engineering project, look no further than TJCAA. We would be happy to be a part of your team.

Industry News - Concrete Compliance with NSF/ANSI Standard 61

The California Department of Public Health requires that materials or products for drinking water systems meet the specifications of NSF International/American National Standard Institute Standard 61, *Drinking Water System Components - Health Effects*, where the materials would be in contact with water intended for potable use. These requirements include the concrete in the plants—a factor for which designers and owners must plan ahead.

NSF explains it this way: "Concrete used in large storage tanks, reservoirs and pipelines is usually a combination of cement, admixtures, curing compound, sand and gravel. It can also contain fly ash and other additives to strengthen the concrete and increase its durability. However, any of these additives can have contaminants that

can cause compliance problems for the utility and present potential health risks to the consumer." (nsf.org)

In California, indirect additives to drinking water are covered by California Water Code 22 §64591, which references NSF/ANSI Standard 61. Individual components must be certified. While concrete does not need to be certified if it has an NSF/ANSI Standard 61-certified coating, coatings may be prohibitively expensive for large tanks.

The CDPH explains that for uncoated tanks, there are three options: 1) have a concrete core sample tested for NSF/ANSI Standard 61 compliance by NSF Accredited Testing Laboratory, 2) certify the components using a "site mix evaluation method," or 3) use only pre-certified components in the site mix.

We also have reports that some contractors have been taking a "soak test" approach in which the tank is built and filled, and then the water is tested. If the concrete does not pass based on this testing, a compliant coating must be applied.

Several Portland cement manufacturers provide NSF/ANSI Standard 61-compliant cements and admixtures. Using pre-certified components offers a proactive approach for minimizing startup delays. When a pre-certified component is not selected or available—pre-certified fly ash, for example, may be difficult to obtain—the "site mix evaluation method" may be used before construction. Materials that contain constituents of concern (such as carcinogens) above certain thresholds must be replaced.

NSF performs aggregate-only testing, with typical costs for recent projects ranging from \$2,000–\$3,000 (cdph.ca.gov, calcima.org). Testing the cement in its dry form, in contrast, can be quite expensive (\$20,000

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Featured
Employee -
Andria Prior

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and up). TJCAA suggests that large tank projects use testing for the aggregate and a spec for pre-certified cement and any admixtures.

With any of these approaches, any necessary testing for compliance is performed by the contractors, so it can not be performed until the bid is awarded and it must be incorporated into the construction schedule. Please call us if you would like to discuss how we can help with your NSF/ANSI Standard 61-compliant project.

Featured Employee - Andria Prior

Our featured employee for this month is our lead CADD operator, Andria Prior. Andria



joined our firm in 1999 and was one of our first employees. TJCAA was in its Pleasant Hill office in those days. "I was fresh out of school," recalls the San Leandro native, and there were some especially challenging projects right away that required hard work to meet big deadlines.

Terry Cavanagh says, "We're proud of TJCAA's contributions for those demanding, high-profile plant expansion projects, and we're very grateful for Andria's extra efforts, along with those of Structural Engineer Richard Thow, who has also been with us since the beginning."

Andria found her way into CADD work somewhat unexpectedly. She was working as a customer service phone agent for a wireless company, when the company relocated its office and laid off most of its employees at her location. With the layoff, however, came a chance to learn a new skill:

she was offered a "go to school" plan as part of her severance package and she jumped on that opportunity.

The CADD classes looked like a good opportunity, she said, but adds, "At first I hated it! It was like learning a difficult new language." The new language, she explains, included the construction terms and technical jargon with which she was initially unfamiliar. She persevered, and as she acquainted herself with the tech terminology and her skills grew, she realized that it was a good fit. Now, she says, she's quite comfortable with it and loves what she does—developing structural, electrical, and instrumentation drawings for TJCAA. Andria notes that with her many years of experience, she can enjoy both the aspects of the projects that are familiar, and the fact that each project is a little bit different.

For those of you engineers out there that have been around the sun a few more times than she has, note that she has *never* drafted on paper, and the vast majority of drawings that she delivers are issued in electronic form.

Andria takes pride in putting out a quality product. "Quality is very important in what we do." She adds, "I try to make sure I have a good understanding of what I'm drawing, because that contributes to quality work. It also helps the job. If you understand what you're doing, it gets the job done faster."

Another category of expertise she makes use of in her spare time is that she knows where to find the right item, and knows how to appreciate the experience of looking for it. That is, she enjoys a good shopping trip. Where to? She laughs, "Anywhere, even if there's not a purpose!" We also know that when we're looking for entertainment recommendations, she will be up on the latest movies. Andria says

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Entertainment
Review -
Maker Faire

Did you know?

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that she enjoys romances and feel-good stories in particular.

She reports happily that she feels good herself, especially because she has a current focus on health—working out, eating well, and cooking her own meals from scratch. Her current favorite recipes include a turkey chili and light stir-fry, which both feature lots of delicious fresh vegetables.

TJCAA's CADD group offers a variety of services that can help you meet your drafting needs. Our experienced staff not only has the ability to provide drafting in AutoCAD and Microstation, but also can produce 3D Sketchup renderings that can enhance your ability to share information about your project. Contact us if you would like to temporarily augment your staff with our proficient, dependable CADD professionals.

Entertainment Review - Maker Faire

Our last issue previewed the Bay Area Maker Faire, a two-day festival of invention, imagination, and idea exchange. The 2014 Maker Faire did not disappoint. We interviewed three young makers, ages 9, 10, and 11, who attended this year's Faire (names have been changed to protect the innocent).



El Pulpo Mecanico

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TJCAA: *What was the weirdest/most fun thing you saw at this year's Maker Faire?*

Paul: Either the giant, bicycle-powered rolling cupcake, or the bike that looked like a big, fluffy dog.

George: The steampunk cloud cannon fog machine.

Ringo: El Pulpo Mecanico (a 25-foot-tall, flame-shooting mechanical octopus).

TJCAA: *What did you see that you most want to try at home?*

Paul: Make an Arduino-controlled Nerf Gun.

George: Make a "plant piano" (editor's note - since then, we have heard him play his awesome piano, in which the "keys" are fresh slices of watermelon).

Ringo: Build and operate RC battle boats!

We congratulate all of the creative exhibitors at this year's Maker Faire, and we look forward to more inventions by our own family of young makers in the future.

Did you know?

The word "pixel" means "any of the small discrete elements that together constitute an image (as on a television or computer screen)" or "any of the detecting elements of a charge-coupled device used as an optical sensor." The first known use of "pixel" was in the late 1960s, and it is a combination of the words "picture" and "element." (merriam-webster.com)

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Dates to Note

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June 12–July 13	The 2014 FIFA World Cup Brazil™
June 21	The Summer Solstice
June 21–22	The Paris Maker Faire
June 23–July 6	The Championships at Wimbledon
June 25	Junius Courtney Big Band with Denise Perrier at Yoshi's, Oakland (See your favorite Electrical Engineer—Paul Giorsetto—play lead trumpet)
July 5–27	Tour de France
July 8–10	Intersolar North America, San Francisco
July 11–27	California State Fair
July 17–20	The Open Championship at Royal Liverpool
July 25	Junius Courtney Big Band at Freight and Salvage, Berkeley (Your second chance!)
August 10–13	Perseids Meteor Shower
September 4	NFL Season Opener: Green Bay at Seattle

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