The TJCAA Quarterly

winter 2015

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Message from the President

Is your pipe design up in the air?

Message from the President, Gianna Zappettini

I recently learned that some cultures consider the number 8 to be a very positive number. When reflecting back on 2015, I noticed that the individual numbers in the year added up to 8 (2+0+1+5). No wonder 2015 was a positive year for TJCAA! Realistically, I know that it would not have been a great year without the combination of an excellent staff and wonderful clients. BTW, 9 is also considered a good number, so we are looking forward to 2016 being a terrific year, too. Happy Holidays!

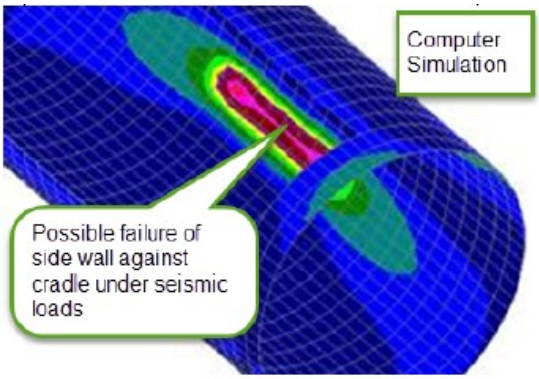
Is your pipe design up in the air?

In today's world, using the same pipe detail over and over again may not be appropriate. Design seismic forces in the Code have increased considerably during the last couple of decades. As a result, older standard pipe support details may not be up-to-date with the industry and may be inadequate for meeting a project's Code requirements.

We frequently run into outdated pipe support details in water and wastewater treatment plant designs. While using tried-and-true details is common engineering design practice and is efficient in many cases, using an outdated detail may result in a design that does not meet Code and that is inconsistent with current practice. Even new details that work in one region, such as New England, may not be appropriate for other areas, such as the Western United States.

Standard anchoring systems often use post-installed anchors. Anchor manufacturers often update their anchors to comply with Code modifications and with updated engineering practices. As an example, anchor capacities have been reduced recently due to a change in the required design temperature for epoxy anchors. What worked 2 years ago may therefore no longer be adequate, even though a Code change has not occurred.

A support design must be adequate for the pipe's position and setting, and sometimes, something other than a standard system is needed. An inadequate support could result in pipe failure, especially in high seismic areas and sites that are prone to settlement and/or liquefaction. (Stay tuned for more info on liquefaction in a future edition). TJCAA Structural Engineer Terry Cavanagh notes that for larger pipes with high seismic forces, the pipe shell itself can fail when supported in a "standard" cradle. We have seen "standard details" that have required modifications to prevent this type of failure. For these cases, TJCAA uses computer simulation to determine the adequacy of the support and the pipe (see figure).



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

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Is your pipe design up in the air?

Supporting a pipe properly requires adequate spacing of supports and a design that can handle not only gravity, but also lateral loads. This applies whether the pipe is 2 inches or 84 inches in diameter.

"Pipe supports must also be well founded," Terry explains, "and must be able to address the potential effects of excessive settlement." TJCAA engineers sometimes run into evidence of inadequate supports at existing facilities. The pipe supports shown here, for example, left their pipe and valves up in the air and unsupported when settlement occurred.

Mechanical Engineers performing piping designs should select their pipe support systems carefully in light of current Code and with respect to site-specific considerations. Should you have any questions and/or concerns, we are happy to review your pipe details. Our engineers can provide suggestions for design modifications, if needed.

For new facilities, we can help make sure your standard details are current, with appropriate and up-to-date call-outs for anchorage and materials. For existing facilities, it is far better to be proactive than to wait for a pipe failure to occur. Please give us a call if you have concerns about an existing installation.

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TJCAA Fun Fact - Rick's Miles

Did you know that during 2000–2013, Rick Cavanagh traveled over 110,000 miles per year by air as part of the inspection services provided by TJCAA in the United States? During that time, he took 75 to 85 flights per year, and most of those flights were on one airline. To date, he has flown over 1.1 million air miles with America West, US Airways, and American Airlines and he enjoys status as a *Million Mile Flyer* with American. Things have settled down and currently, Rick is flying around 30,000 miles per year.

Entertainment Review - No Spoilers

You may have seen "Star Wars - The Force Awakens" already. If you have not yet seen it (and maybe even if you have) it could be a good time for a story review. That is, it may be time for you to watch all six earlier Star Wars movies again or (no, really?) for the first time. This trip back to a galaxy far, far away will not only help you understand what the fuss is all about, but it will also help you avoid holiday traffic for around 13 glorious hours!

The debate rages on, at least it does in Terry's house, as to *which order* is best for watching the first six Star Wars movies. The family's youngest aficionado recommends watching them "in order, from Episode 1–6. That way you see the whole story develop." In contrast, the most entrenched Star Wars fan in the house recommends a different order: 4, 5, 1, 2, 3, 6. She feels that this approach "honors the original vision, maximizes the impact of Big Reveals and cliffhangers, and provides good resolution." (Total time, about 800 minutes, depending on which versions you screen. All episodes are rated PG except Episode 3, which is PG -13.)

Did you know ?

For the upcoming Super Bowl (see our Dates to Note section), The NFL is taking a 1-year break from using Roman numerals. That is, in February it will be "Super Bowl 50," rather than "Super Bowl L." The NFL has indicated that it will resume using Roman numerals in 2017, with "Super Bowl LI."

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

2015

December 22	The Winter Solstice

2016

January 1	The 102nd Rose Bowl Game - Stanford vs. Iowa
January 18– January 31	Australian Open, Melbourne Park
February 2	Groundhog Day
February 7	Super Bowl 50
February 8	Chinese New Year
February 11– February 14	AT&T Pebble Beach Pro-Am
February 21	The Daytona 500
March 17- March 20	The Formula 1 67th Season Opens in Melbourne Australia

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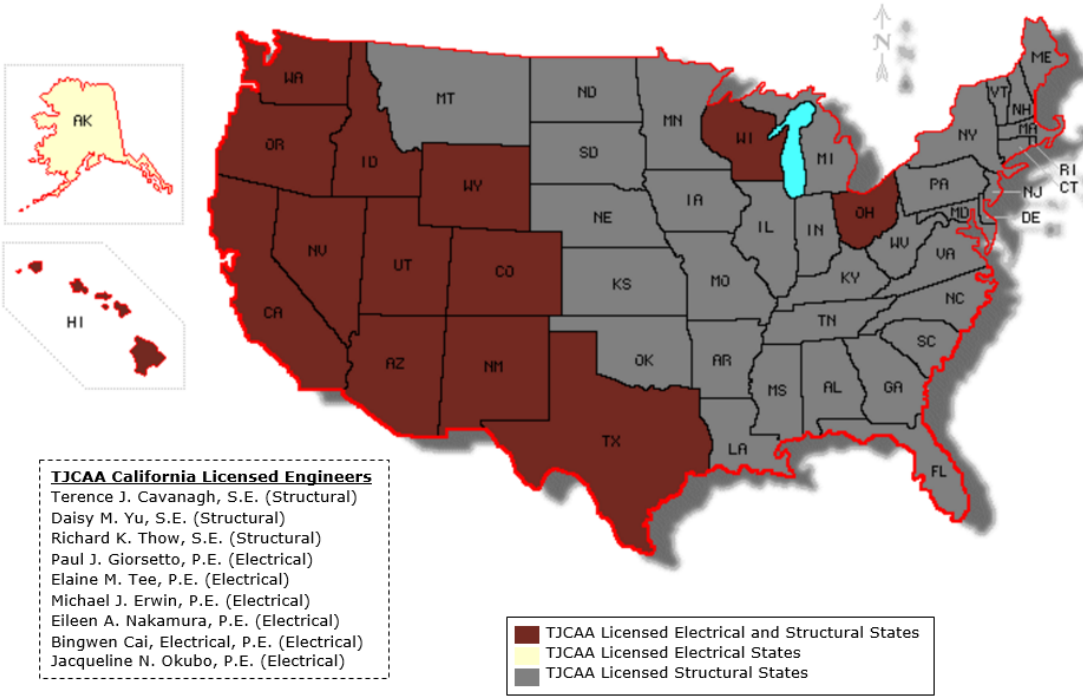
TJCAA Engineering Licenses

Our Engineering Licenses—We've got it covered

This issue corrects an omission in our previous version. The map below shows our most up-to-date set of licenses.



TJCAA California Licensed Engineers

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