



TJC
and ASSOCIATES, Inc.

Message from the President

Terrapin Testing Accredited to Perform Friction Testing

Industry Notes - Code Updates

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

2016

www.tjcaa.com

Message from the President, Gianna Zappettini

I recently took a trip to Las Vegas to watch a collegiate golf tournament. I followed one golfer in particular and watched him improve each day. While that was impressive on its own, the real key to his school's success was the combination of scoring by all five team members, which garnered them a top ten finish. If you are looking for a team member to help put your project at the top, then I would recommend contacting TJCAA for our structural, electrical, I&C and control systems programming expertise.



Southern Highlands Golf Course

Terrapin Testing Accredited to Perform Friction Testing

TJCAA is pleased to announce that our sister company, Terrapin Testing, is accredited with the International Accreditation Service (a subsidiary of ICC) for Friction Testing per Section 8 of SEAOC PV1-2012 (*Seismic Structural Requirements and Commentary for Rooftop Solar Photovoltaic Arrays*) and

ASTM G115 (*Standard Guide for Measuring and Reporting Friction Coefficients*).

This friction testing is primarily used by designers for ballasted PV support systems to determine the lateral resistance created by friction between the PV support and a particular roofing membrane.

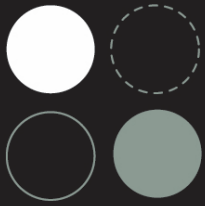
TJCAA's engineers can work with support system manufacturers to develop a testing program that is best suited for their products. We have done this type of testing with both full- and small-scale testing approaches. While full-scale testing involves sliding an entire array across a roof system, small-scale testing uses individual components to determine individual coefficients of friction. Please contact us if you would like to discuss friction testing for your PV support systems.

Industry Notes - Code Updates California Building Codes (CBC)

The 2016 CBC, which is based on the 2015 IBC, will be available for purchase in June of 2016 and will become effective on January 1, 2017. Any California project that will be permitted after January 1, 2017 (including bid sets for municipal water and wastewater treatment plants) will need to comply with the 2016 edition of the CBC. We will have more on this topic in TJCAA's Summer Solstice Newsletter.

Copyright 2016 TJC and Associates, Inc. All Rights Reserved

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



TJC
and ASSOCIATES, Inc.

Industry Notes -
Code Updates

What's
liquefaction?

The TJCAA Quarterly

2016
www.tjcaa.com

International Building Code (IBC)

ICC writes the model codes, which govern most design projects, and its Code Hearings will be held in Louisville from April 17–27. These hearings will focus on updates to the 2015 Codes, and the results will become the 2018 Codes.

Specifically, the hearings this spring will address the Group B International Codes:

- Administrative (all codes)
- Structural chapters in the IBC and the International Existing Building Code,
- Building and energy chapters in the International Residential Code
- All chapters in the International Fire Code, International Energy Conservation Code and International Wildland-Urban Interface Code

For more information regarding the ICC code development process, visit www.iccsafe.org or contact TJCAA.

What's liquefaction?

This installment of our "Did you know?" series focuses on liquefaction, which is a phenomenon in which cyclic earthquake shaking or other rapid loading causes soil to behave like a liquid. When liquefaction occurs, the soil's strength

and stiffness are reduced, and its ability to support a foundation can be severely compromised. Major damage to buildings, bridges, and other structures can result when liquefaction occurs beneath them.

The effect typically occurs in granular soils in which water completely fills the spaces among the soil particles. Earthquake shaking causes an increase in the water pressure, and under the increased pressure the soil particles act like a fluid and begin to move relative to each other. The USGS notes that in these situations, the soil can move to the extent that it can "flow down even very gentle slopes and erupt to the ground surface to form sand boils. Many of these phenomena are accompanied by settlement of the ground surface, usually in uneven patterns that damage buildings, roads, and pipelines." (usgs.gov)

Our clients have encountered the potential for liquefiable soils on many of their sites. This isn't surprising! Our region contains extensive areas that have the three factors required for liquefaction to occur: loose, granular sediment; saturated soil; and strong shaking.

TJCAA Structural Engineer Terry Cavanagh explains that uniformly graded soils—with particles all about the same size—are more susceptible to liquefaction than well-graded soils. "The classic example is a sandy soil that is saturated with water," he says. In the

Copyright 2016 TJC and Associates, Inc. All Rights Reserved

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



TJC
and ASSOCIATES, Inc.

What's
liquefaction?

TJCAA Engineers
Get Promoted

TJCAA Fun Fact

The TJCAA Quarterly

2016
www.tjcaa.com

San Francisco Bay region, we also have many areas where fill has been used to create level ground for development—another situation that can have a high potential for liquefaction.

The USGS publishes a Susceptibility Map for the San Francisco Bay Area, and states that “roughly 25% of the 9-county region falls into the Very High, High, and Moderate categories for liquefaction susceptibility, given the shaking that has been forecast.”

The potential for liquefaction at a site affects the approach that we use for a foundation design. Terry notes that the approach can be either to use deep piles or to mitigate the potential for liquefaction by improving the strength and density of the soil. “The important part of a soil improvement approach is to consolidate the soil, which can be done in several different ways.” The consolidation of soils may involve deep dynamic compaction, stone columns, or grout piers. With better soil consolidation, the increased water pressure is less likely to result in movement within the soil.

If you would like to discuss your liquefaction concerns, please contact us.

TJCAA Engineers Get Promoted

We are pleased to announce that three of our engineers have been promoted recently. Paul Giorsetto, P.E., LEED AP, has been promoted to Vice President. Our newest Principal is Michael Erwin, P.E., and Richard Thow, S.E. has been promoted to Associate. Through their

quality of service and dedication to our clients, Paul, Mike, and Richard have been highly influential in TJCAA's success and growth. Congratulations!

TJCAA Fun Fact

Our Oakland office is in a unique structure—the Cathedral Building at the intersection of Broadway and Telegraph Avenue. We occupy the 4th floor of this gothic skyscraper, a flatiron-shaped landmark by architect Benjamin G. MacDougal.

The vibrant Uptown neighborhood surrounding our location was undergoing rapid development in 1914, when the Cathedral Building (originally known as the Federal Realty Building) was completed. Skyscrapers were going up along Broadway. Major department stores and hotels rose in downtown Oakland as the city competed with San Francisco for dominance in the Bay Area.



TJCAA's Oakland Office

Copyright 2016 TJC and Associates, Inc. All Rights Reserved

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



TJC
and ASSOCIATES, Inc.

TJCAA Fun Fact

The TJCAA Quarterly

2016
www.tjcaa.com

The Cathedral Building is regarded as one of the West Coast's finest examples of Gothic Revival architecture. It was placed onto the National Register of Historic Places in 1979, and according to its NRHP nomination form, it was constructed "at a projected cost of \$300,000."

Some of the floors were originally equipped with doctors and dentists in mind, and there was an exclusive restaurant in the basement. Some sources describe the basement restaurant as a speakeasy, but we have yet to uncover hard evidence regarding that. We are, on the other hand, eagerly awaiting the grand opening of an upscale bar being developed on the ground floor now.

In 1944, Attorney Wilbur Pierce bought the building for \$120,000 and renamed it the Pierce Building. It came to its current name in 1969 when it was purchased by a syndicate headed by Albert Goldhagen, who paid "in excess of \$500,000" for it.

The Cathedral Building opened to acclaim, with an Observer article reporting, "It is not overstating the fact to say that, prominence and unique character of location being considered together with architectural distinction, the Federal Realty Building is one of the most notable business structures in America. The owners have shown an admirable appreciation of their responsibility in using a corner whose architectural improvement must have so

far-reaching an influence upon the development of the most important district in Oakland." (No.9, November 28, 1914)

During most of its history, the Cathedral Building had a store on the first floor and offices above. For a period beginning in 1962, the first floor housed a diner. Currently, the Cathedral Building has four commercial spaces intermixed with nine luxury condominiums.

At the time of its nomination to the NRHP, the structural features of the Cathedral Building were described this way:

Steel-frame construction resting on concrete footings. The main supporting columns are located between every other bay window. Spandrel girders between columns support the bay windows and carry the load of an intermediate cross girder. The floors are constructed of reinforced concrete. The curtain walls are also concrete sheathed in semi-glazed terracotta of a light buff color. The decoration on the lower stories is concrete and terracotta. However, the extensive decoration at the top of the building is made of hollow sheet metal and painted an orange-tan color.

The Cathedral Building, which looks a bit fresher these days, had a seismic upgrade to the historical building code around 2007.

The building's location in Latham Square was historically a hub for transit in an extensive streetcar system. The triangular public plaza includes the Latham Memorial Fountain, which was

Copyright 2016

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



TJC
and ASSOCIATES, Inc.

TJCAA Fun Fact

Dates to Note

The TJCAA Quarterly

2016

www.tjcaa.com

unveiled in 1913 in honor of James and Henrietta Latham, who were not only Oakland pioneers, but also animal rights activists. It originally included drinking fountains and water troughs alongside, so that horses and humans could both enjoy a drink. Wonderful historical photographs of Latham Square and the Cathedral Building under construction are available in the [JRDV Urban International cultural history survey done for the City of Oakland](#).

Latham Square has had many different looks over the years, and an upgrade to the small plaza is in progress right now. See the progress photo here and stay tuned for updates in future editions. In addition, come visit us in the Cathedral Building and check it out for yourself.



Latham Square Plaza Work

Dates to Note

- March 20 The Vernal Equinox
- March 20 Formula 1 Season Opener, Melbourne, Australia
- April 3 Major League Baseball Opening Day
- April 7–10 The Masters at Augusta
- April 9 Junius Courtney Big Band w/Rhonda Benin at Freight and Salvage
- April 18 Taxes Due
- May 7 Kentucky Derby
- May 15–22 Amgen Tour of California
- May 20–22 Bay Area Maker Faire
- May 21 The Preakness
- May 22 Pole Day for the Indianapolis 500
- May 26–29 F1 Grand Prix De Monaco
- May 29 The 100th Indianapolis 500
- June 11 The Belmont Stakes
- June 4 Junius Courtney Big Band w/Denise Perrier at the Ebony Boat Club annual Wine and Music Festival, Stockton
- June 7 Junius Courtney Big Band - Yoshi's, Oakland
- June 18–28/19 College World Series, Omaha

Copyright 2016

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