

THE INNOVATOR

Newsletter

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UT AUSTIN WELCH CONVOCATION

Past and Future in the Present



The Convocation Room is a historic multi-use lecture hall in the original 1929 portion of Welch Hall at The University of Texas at Austin. Tom Green & Company Engineers, Inc. (TGCE) served with Lord Aeck Sargent Architects on a renovation/restoration of the room this year. One of the primary challenges was to improve the lighting in the room with period appropriate lighting. The team worked with Two Hills Studio, a custom fixture manufacturer in Austin, to create chandeliers similar in style to other historic lighting on campus. *Continued on page 2...*

TWO HILLS STUDIO

LORD · AECK · SARGENT
ARCHITECTURE

FLYNN
CONSTRUCTION INC.

UT AUSTIN WELCH CONVOCATION

(cover story continued)

The existing room lighting had been provided from pendant high pressure sodium (orange color) uplighting with incandescent downlighting. The orange color uplighting was washing out an ornately painted ceiling, hiding a major architectural feature of the room. The lighting levels were also low and uneven.

The custom chandeliers had to go back in the same locations as the existing lighting, so the quantity of new fixtures was defined. Another important factor was maintenance. The fixtures are mounted high and above stadium seating, so to replace lamps, a scaffold has to be built in the room to reach the fixtures or the (downlight) lamps have to be replaceable from the floor with a pole. This relamping difficulty and the long life of LED lamps made them an obvious choice. Retrofit PAR 30 LED lamps with a wide distribution were chosen for downlighting to evenly light the space from the defined locations and allow replacement from the floor with a pole.

The ceiling also needed to be well lit to highlight the ornate painting. Twist tube compact fluorescents were chosen to fit in the limited space in the fixture and both uplight the ceiling and provide a glow from the amber lenses between downlights (which could not be done well with LED).

We learned about important limitations of retrofit (screw-in) LED lamps on this project. First, the start-up and/or peak current of the integral LED drivers can make the load of the LED lamp appear to a dimmer as a much higher load. This fact reduces the number of lamps that can be put on one circuit to much less than would be expected based on published lamp wattage.

Second, the design of the dimmer has to be compatible with the driver of the LED lamp. Incompatible matches can result in flicker and some other undesirable behavior. It turns out that the only way to make sure the dimmer will work with the lamp is to have the combination tested. That is what we did in this case. We had samples of the selected lamp shipped to the dimmer manufacturer and tested with the specified dimmer. The result was positive, but it was necessary to make sure.

It is important to note that these limitations heavily depend on the quality of the driver. Fixtures with an LED lamp module and separate driver are much more likely not to have issues.

The Owner was very pleased with the result of our design and has expressed a desire to use it in other locations on campus. The room is now well lit and the ceiling highlighted so that it is visible and can be appreciated.

~ Samuel E. Hammer II, P.E., L.C., LEED AP -Senior Engineer



BEFORE



AFTER



AFTER

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Tom Green & Company Engineers, Inc.

DID YOU KNOW?

“Detail matters in constructability.” Here’s a phrase that speaks volumes in the AEC industry. It is a phrase that is becoming more and more understood, by some. One might assume that it is being mostly spoken in the Architectural/Engineering world when, based on our communications, it’s most often being touted amongst construction trades. Why?

You could probably list several contributing factors: economic and liability factors in design; imposed schedules on design; insufficient knowledge of construction and operation; and perhaps even some element of apathy. Whatever other factors may also exist, the combined result is that we are told that it is hard to find an MEP firm that possess the traits to consistently offer the specifics that contractors need for a successful build. Among the many traits that *Tom Green & Company Engineers, Inc.* (TGCE) strives to continually offer is design thoroughness to address constructability. Also, we are told that by the construction community we are successful at it. How are we able to succeed in this offering? We think it is a combination of many things, most notably the experience we have gained, and continue to gain, through the range of services we provide.

In the past couple of years, our strong reputation in providing thorough and coordinated designs has led to our firm being asked to take a more active construction support role. Our colleagues in the construction industry have recognized our strengths in 3D design, coordination, and constructability, and have begun to use TGCE for shop drawing production, clash detection/resolution, and other BIM related services. Through these services, we have even better learned how things are actually getting built these days... and how they will actually be maintained. We logically apply this insight to our designs.



Our industry is also trending towards the “more for less” mentality. In construction, it goes kind of like this. More: spend a little more time and money early to better get things done right the first time (e.g., 3D modeling and coordination). Less: when you provide More, you will spend Less in labor, waste materials, change orders, RFIs, etc. As a living testament, some of our teams/clients have indicated up to 10-15% overall labor savings when this approach was used. (Tune into our next newsletter for observations about this More for Less trend in the design industry.)

We have consolidated and dubbed construction related services as our *Construction Support Services* (TGCE CSS). These services include, but are not limited to: project management (as an Owner’s representative); BIM integration (navisworks coordination); enhanced construction administration; commissioning (Cx); shop drawings preparation and their conflicts resolution; systems troubleshooting; and aiding in preparing/reviewing contractor qualification packages.

From concept to completion, whether our design or not, our firm merges experienced judgment, current and emerging technologies, and old fashioned hard work to create a path for success. What separates us from the others? Industry colleagues have told us we just seem to “care more”. So perhaps what is routine for us is viewed as going the extra mile in an effort to provide an innovative yet functional result, in both design and construction.

SEE OTHER SERVICES WE PROVIDE



~ Greg Maxwell, LEED AP - Designer/Technologist

TGCE LIFESTYLES



TGCE *&* Movember

Growing a moustache has become less of a social risk these days. It's widely understood that, with the exception of those that have been blessed with actually good-looking moustaches, the worse it looks, the better the moustache. In all seriousness though, Movember (Moustache November) is a great way to bring awareness and more importantly, elicit conversation about men's health issues. That is why the team here at TGCE has committed to growing moustaches (after shaving on Nov. 1) for the month of November. By changing our appearance, we hope to raise vital awareness and funds for men's health, specifically prostate and testicular cancer initiatives. See a doc! Get checked! Pride has often gotten in the way of these and what better way to show a little humility than growing a mustache to start those conversations. Visit the **"TGCE Mechanical Engineers"** Team Page for updates throughout the month or click the link below to donate to the cause!

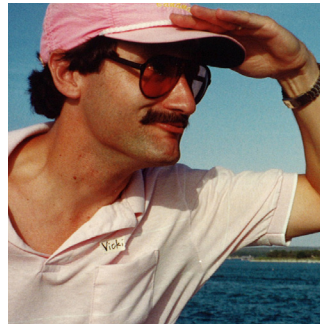
Don't worry, we'll be showing off our AWESOME 'staches in the next newsletter issue!

Learn more about this cause @ www.movember.com

DONATE



IN THE SPIRIT OF MOVEMBER 'STACHE FROM THE PAST



TOM (1989)



TOM (2003)



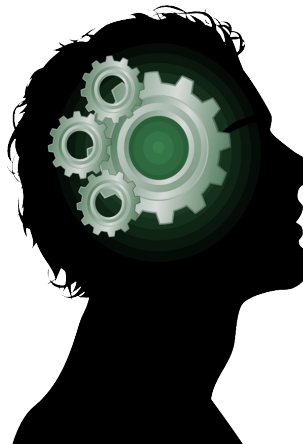
RAUDEL (1997)



ROBERT (1989)

TOM'S TRIVIA

I could not resist combining some history with the election season. (Hint: none are by politicians). Who said:



1. "When people find that they can vote themselves money, that will herald the end of the republic."
2. "This and no other is the root from which a tyrant springs; when he first appears, he is a protector."
3. Fill in the blanks, and the author. "There is only one way to kill capitalism, by _____, _____, and _____."

Author: _____.

* All "close to correct" responses will be pooled, with a winner drawn and awarded a \$25 gift card to The Home Depot.

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Check our website at www.tgce.com/news/newsletter for results.