THE INNOVATOR
Newsletter

images above courtesy of Autodesk

Example: Measure distances between objects.

Example: View in normal or grayscale modes.

Walk with your Work

Some of you may have already heard the news, but for those who haven't, get ready to live! First, you should know that I'm always on the hunt for new technology that will help our company be more efficient. Secondly, you should know that not all new technology is great... or at least like everything else, there's always a caveat in someone's mind.

In December of last year, Autodesk released the highly anticipated update to their AutoCAD WS mobile application, Version 1.1. This may be the coolest thing for the AEC industry since leroy kits. It is for me anyway. I would always hate lugging full-size, even half-size drawings to the field. It can sometimes become burdensome, especially if you're also carrying a camera, a tape measure, etc. How many of you have left your drawings in one room and couldn't remember which room it was? How many of you have gotten to the site and remembered that you left your drawings at your office? No more of that nonsense! You can now reference, edit, download, upload, mark-up, and email your drawings right from your smart phone. Seriously, who doesn't have a smart phone today? And who doesn't always have it on them? Sad but true, these phones have become a lifeline to many folks...I'm guilty.

With the use of this mobile app, I can simultaneously verify our designs with what is actually being constructed. I can see a hidden condition in the field and make the necessary revision to my drawing while on site. The best part about this is that it is all LIVE through cloud computing technology. Cloud is in short a web server that allows users to view, edit, and share files online. Another great tool this process utilizes is a timeline, a visual representation of the history of drawings uploaded to AutoCAD WS. This timeline will let you track any changes or view previous versions of a drawing.

Since I am unable to show you everything this mobile application can do, I've provided the following link to tutorials: http://www.autocadws.com/tutorials. This website has a list of 10 or so tutorials that cover everything from getting started to known issues (as stated initially...the caveats) with the application. I guess my only caveat is the screen size of my iPhone. This is why I'm heading towards an iPad.

I hope that many of you readers can find this as helpful of a tool as I have. Not only can I walk with my work, I can work while I walk. *Greg Maxwell, LEED AP – Designer/CAD IT*
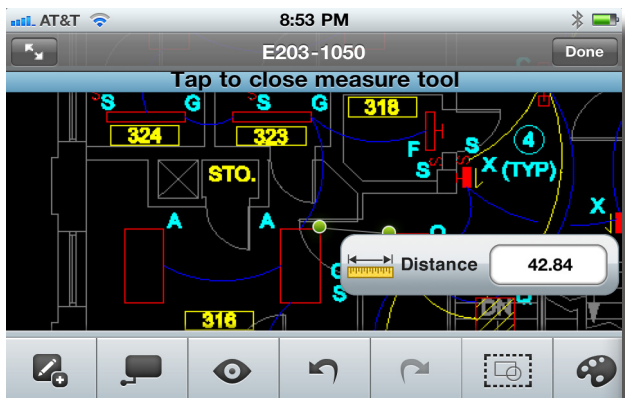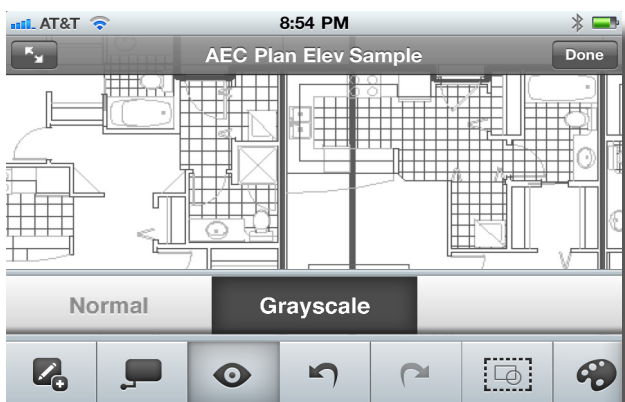
The "MetroRail"
## Capital Metro's Expanded Transit System

The Capital MetroRail has been a big part of the transit plan to connect downtown Austin to surrounding areas. We at TGCE are proud to have been a part of the design teams associated with six of the nine Park & Ride and Train Stop facilities that make up the 32-mile rail line.

To see the MetroRail in operation and to see the community utilizing these lighted facilities is satisfying knowing that great strides have taken place to accommodate the current and future fast pace growth of Austin and the surrounding areas.

TGCE began working on the first (the Leander Park & Ride facility) in 2003, and continued on to other facilities including the Lakeline Train Stop, the Howard Lane Park & Ride, the Kramer and Highland Train Stops, and the Downtown 4th Street Train Stop. Each of these facilities were unique in their own ways but I must say, my favorite is the Leander Park & Ride. This "end of the line" facility located along Hwy 183 in Leander, has a great layout including a restroom and future coffee bar building, walking trails around the pond and site, a clock tower in a grand courtyard and pavilion area and of course lots of parking and a train station. Each of these unique areas are lighted by a variety of lighting fixture types and methods. The lighting designs include tree lighting via in-grade lighting fixtures, walkway lighting via bollard type fixtures, indirect lighting for canopies and pavilion areas, sign lighters and lots of parking and roadway lighting.

The lighting designs are similar at the other facilities but architectural and landscape elements lent themselves to site specifics which allow us as lighting designers to work closely with the design team to be a little creative (right up our alley).

It has been a pleasure to work with Capital Metro, the design teams, and the contractors during this approximately 10 year period from ground break to full use of the facilities in 2010. We look forward to the continued success and use of the MetroRail system and the Park & Ride facilities. - *John (JD) Davidson – Vice President and Senior Electrical Designer.*
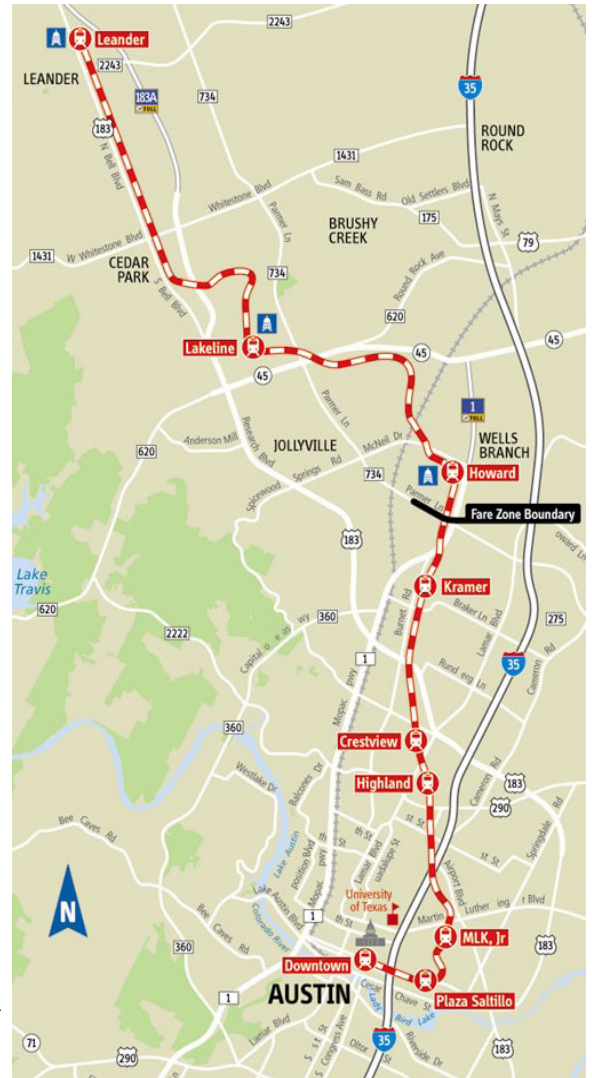
Map courtesy of Capital Metro (http://capmetro.org/metrorail/stations.asp)

Architect: McKinney Architects, Inc.
Structural Engineer: Jaster-Quintanilla & Assoc.
Transportation: WHM Transportation Engineering
Landscape: Garcia Design, Inc.
Security: Kroll
Graphics: FD2S

Leander Park & Ride Facility

This Thing Called Commissioning: Part II

Welcome back! Okay, so where did we leave off? In Part I, we learned about some of the history of Commissioning (Cx) and that Cx means different things to different people and to different projects. We'll explore some more specifics in this Part II.

The current norm as expressed by industry-recognized contracts is for the construction team to perform its work consistently with the construction documents. There is a reasonable process within those contractual norms to review the <u>construction</u> performed by the contractors: to that is, what I call the static elements of the work. There is little, however, process in these contractual norms to review and verify proper <u>operation</u> of the dynamic systems built by the construction team.

Why is that? I believe there are a couple of primary reasons. First, historically, the systems were generally straightforward and their operation was limited and reasonably well understood by building operators. Secondly, the above mentioned contractual industry norms evolved with a general focus on low first cost, including that for the design professionals.

The problem with this model is that, as dynamic building systems (e.g. M, E, P) became more sophisticated, the operational verifications and fine tuning that were <u>necessary</u>...didn't occur. And buildings were delivered incomplete. And the industry contractual norms stayed with the low first cost model. And this thing called Commissioning moved into the building industry to fill the gap.

And how is that gap being filled today? In many cases, it is not. Owners' positions can state "why should I have to pay for extra work to get the constructed product I am supposed to be getting anyway?" A fair question, no doubt. The answer lies in some mix of the model of low first cost in construction and professional services contracts no longer being compatible with the sophisticated dynamic systems needed to meet today's expectations of safety, comfort, air quality, and efficiency.

In those cases where the gap is being filled, to one degree or another, it is most often being done with a new set of service providers known as the commissioning authority (CxA). This third party (not on the construction team, not on the professional A/E team) is retained by the Owner in a support role intended to verify the project is delivered complete and ready for occupancy. The CxA, however, generally has little authority to tune and adapt engineered systems and little contractual responsibility (liability) in the performance result. In addition, there is considerable redundancy in the CxA's services with those provided by the professional design team. And while an overlap is not a bad thing, neither is it an inexpensive thing.

Even with the CxA on the project, however, an important gap remains: the sophisticated systems are not all verified and tuned together to get the operation (efficiency, safety, reliability, air quality, etc.) intended by the design and deliverable by the systems. What, you say? Not all verified and not tuned? Correct.

The role of the CxA is generally limited to installation and control details prescribed in the documents. It does not include verifying all the engineered systems work together and are properly adjusted and tuned. Doing that would be engineering, and that role is limited to the engineers...but it is not contracted to the engineer. Why, you say? Reasons most likely vary. My experience suggests it is some mix of not wanting to pay additionally for these services which are not in the base engineering contract, and the (mis)impression that the CxA is able to direct this adjusting and tuning.

The solution? In the immediate term, Owners, the A/E community, and the CxA community need to recognize the current model delivers neither the Owners' expectation on readiness nor the engineer's intent on performance. Owners need to be open to the reality that their design engineers should be tasked with and paid for performing integrated systems verifications, and for directing construction forces to provide proper adjustments and tuning.

In the near term, it is believed the current third party CxA will evolve to including this responsibility in the design engineer's scope and compensation, at least for those firms experienced and adept in providing those services. The reasons for this forecasted evolution are simple: the redundancy/ overlap between the CxA and the A/E is removed, and hence the costs are reduced and the construction and design lines of responsibility (liability) are not muddied with the insertion of a third party. Both of these reasons benefit the Owner.

It is true that, currently, some engineering firms are not as qualified to perform this CxA role as others, but then neither were many of the CxAs when they first began. As with any project, the engineer's selection should be a proper fit for that project, including Cx where it is included. As engineers more routinely provide commissioning and commissioning verification services, their qualifications will grow just as has occurred with the CxA community. And in the process, the overall costs to the Owner will shrink.

So, there you have it. A summary on Cx from one who has seen it developing, all the way to where its "full circle" will, I predict, take it. Your thoughts and questions will be welcomed. Best to all. - *Tom Green, P.E., LEED AP - Principal Engineer*

TGCE LIFESTYLES
PICKS OF THE SEASON

TGCE TEAM INTERVIEW

David Meyer, P.E., Leed AP

Why did you become an Engineer?

My brothers worked in construction in El Paso and had a lot of exposure to Engineers. My oldest brother, Mike, worked as a crane operator and later as a superintendent. He knew I had been good in science and math, so he encouraged me to become an Engineer.

If being an Engineer was not an option, what would you like to do for work?

If I had not become an Engineer I would have loved to be a doctor (a general practitioner). I have always enjoyed helping people with more complex issues similar to what we do as Engineers.

For those who know you, what is one thing about you they wouldn't know?

I have no answer for this....I am not that complex.

For those who don't know you, summarize in one sentence who David Meyer is?

Of course I strive to be the best that I can be but more importantly is to make my family proud of who I am and to provide a positive influence.

What project at TGCE has had the biggest impact on you as an Engineer? Why?

My very first project at TGCE made an impact on me. TGCE's quality control process and technical knowledge is phenomenal and unlike anything that I have been exposed to before. Having said that, I would say the biggest impact overall has come from the TGCE team itself. They have instilled a thought process within me that is required of any good Engineer.

Any words of wisdom for future Engineers?

My advice to future Engineers is to stay connected with the local engineering community. The friendships I have developed through organizational activities and employment have proven to be invaluable.

iPHONE APPS

Teamviewer - FREE

Teamviewer provides easy, fast and secure remote access to Windows, Mac and Linux systems.

Have access to your own computers with all of its documents and installed applications right from your mobile device. Wi-Fi connection is not needed. use 3G or 4G technology to access your computer from any remote location where service is available.

HeyTell - FREE

HeyTell is a cross-platform voice messenger that allows you to instantly talk with friends and family. No account needed -- just start the app, choose a contact, and push the button to start talking.

HeyTell is a free alternative to text messenging... safer as well (for you law breaking texting drivers).

TOM'S TRIVIA

1. Name 4 out of the 7 licensed Engineers that work at TGCE.

2. Out of the 4 you list, who is the oldest?

3. Out of the 4 you list, who is the youngest?

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

Reply to **newsletter@tgce.com**.
Check our website at **www.tgce.com/index_files/newsletter** for results.