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Gibbens Drake Scott, Inc.

# Originate

THE LATEST EVENTS, PROJECT DETAILS AND UPDATES FROM THE MECHANICAL ELECTRICAL AND PLUMBING ENGINEERS OF GIBBENS DRAKE SCOTT, INC.

*The United States Green Building Council has come a long way from its first days and continues to evolve with the ever-increasing desire for greener designs and improved quality of life.*

## The Evolution of Change

Change surrounds us in all aspects of life; hair fades to gray, wrinkles appear and the clothes we once wore soon fit a bit more snug (if they can fit at all). As Gibbens Drake Scott, Inc. prepares to celebrate its 25th year, it is impossible to resist looking back on the change surrounding the building industry. While the introduction of personal computers and AutoCADD certainly changed the 80s, the recent development of the 90s and today seems to be the United States Green Building Council (USGBC) and the entire *green* movement.

Founded only 15 years ago, the USGBC has rapidly grown into an establishment composed of more than 15,000 organizations from across the building industry. While its mission is to improve the quality of life through the design of buildings, one of its purposes is to help the construction community better understand the green concept and the Leadership in Environment and Energy Design (LEED) certification system. This system, to those who have had the experience, is not perfect by any means; it is cumbersome, lengthy and filled with loop holes for point chasing instead of purely promoting the intent of changing the built environment. However, LEED continues to triumph as the best method of quantifying the meaning of *green* and has evolved from the exhausting load of paperwork it once was. A modernized web-based process, LEED 2009 is being developed with the input of the local chapters to provide more weight to those items with greatest impact in their region. It will also provide a consolidated point system for all types of certifications instead of the various EB, CI and NB systems. GDS, a member of USGBC since 2002 has worked hard to continue in its effort to ensure the efficiency of every endeavor, ***continued on page 4***

## NEW FACES

### Megan Hultgren
### Marketing Director

A Missouri transplant, Megan graduated from the University of Missouri at Kansas City with a BBA and has subsequently built a solid history in the field of Sales and Marketing. She looks forward to working with GDS.

### CSS POWER

GDS is happy to join forces with CSS Power; a firm providing power quality solutions to a diverse assortment of clients across North America.

# Clearing the Air

Jay Guerra, P.E.

*Making sense of GREEN*

In my mind, it is unavoidable (and unfortunate) that we as humans take something that just makes sense, and has always made sense, and turn it into something NEW, SPECIAL and UNIQUE.

I am referring to GREEN. You know, it's not just a color anymore. GREEN now embodies all efforts and initiatives to save our globe from the perils of Global Warming, the consequence of CO2 emissions generated from our use and misuse of power and resources. Now, rather than launch into a documentary on all the discussion about this topic, detailing the myths and truths (convenient and inconvenient), let me just side-step this debate. Instead I'll talk about what just makes sense from the world of Mechanical, Electrical, and Plumbing engineering as we see it at Gibbens Drake Scott. Later in this newsletter we highlight the efforts of many exceptional people in our local USGBC chapter and the greater Heartland region.

Those who know Tom Gibbens and Gibbens Drake Scott know that we don't put a lot of money into marketing campaigns; we haven't changed our color scheme or put a ficus on our business cards. Furthermore, we haven't changed the way we pursue cost effective, sustainable designs (defined as designing long term solutions specifying equipment and systems built to last). To Tom, for the last 25 years, this just made sense. The new AIA Code of Ethics now has language to the effect that Architects (and presumably their consultants) need to pursue sustainable practices and present these options to their clients. Great idea, but again it doesn't sound like anything new and it just makes a lot of sense to all conscientious engineers.

As engineers, why wouldn't we want to present the best life cycle cost to our clients? Of course, the decision is ultimately up to the one paying for it. If a client is not a long term tenant or is simply leasing a space, the decision to be GREEN will then be a decision that will require a more 'environmentally conscientious' choice, versus simply a financial one.

At Greenbuild last year in Chicago, what I found most interesting was that people who generally differ on political or social issues, were present pursuing the same cause but from different vantage points. It was intriguing and refreshing to see the Left and the Right in the same room. I guess to some extent this is NEW, SPECIAL and certainly UNIQUE, but to Gibbens Drake Scott Engineering, bringing a diversity of people together into a team to pursue a common goal has always made sense.

From the Sprint World Headquarters Campus to the Missouri Department of Conservation Discovery Center, from Power Plant Precipitators to Ethanol Plants and from the COE to NOAA, this is the type of team building we have pursued for the last two and half decades, and we look forward to the next one with you.

## PROJECT SPOTLIGHT

### *GreenEarth Cleaning*

GREENEARTH® CLEANING

A new, environmentally friendly way of drycleaning, GreenEarth Cleaning has created a new product that "cleans in a way that is superior to any other solvent" while remaining environmentally friendly, economical and free from safety concerns. GDS will be providing MEP services to a team contracted to build locations utilizing the GreenEarth process.

### *Kansas City Ballet*

GDS is joining the team of JE Dunn, US Engineering, Mark One Electric, BNIM, and MC Lioness Realty Group for a design/build project with the Kansas City Ballet. The old power house at Union Station was built in the early 1920's and will be converted into a dance studio for the Kansas City Ballet. The 62,000 SF facility will be on the historic register and will incorporate a 200 seat, 3,600 SF performance studio and six 1,350 SF studios. Dressing rooms and locker rooms for the students and business offices will also be incorporated.

# Words From our President

Tom Gibbens, P.E., RCDD

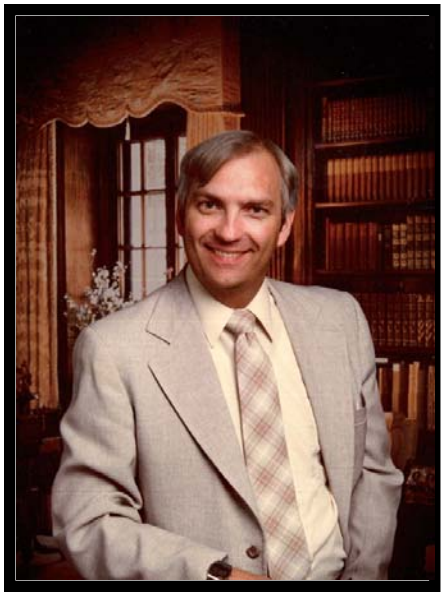
*Tom Gibbens reflects on the great strides that the engineering industry has taken over the last four decades.*

My career began in the fall of 1967, working for Burgess Latimer & Miller Engineers in Kansas City. The office was in the Lillis Building on Petticoat Lane, also known as 11th Street. I was still in College and had gotten married in June of that year. There were two Electrical Engineers there at the time, Jack Casburn and Sal Arnone, and one other Drafter by the name of Gary Boulware.

There wasn't much in the way of technology back then. We used T-squares and triangles for most lines and had templates for small circles, arcs and various symbols. Large circles or arcs required that we use a compass. We drew with mechanical lead pencils and we would sharpen them using a K&E pencil lead pointer. It was quite an art to twirl the pencil as you rotated the pencil in it, without breaking the lead and having to start all over again. We had to frequently wash the heel of our hands to minimize the smudges on the paper.

Lettering was quite an art. We used Ames lettering guides to keep the lines of lettering straight. The work at BLM included hospitals, schools, office buildings and a lot of work for AT&T. The AT&T work had to be done using ink on linen paper for durability. We would use Koh-I-Noor refillable ink pens with a lettering template. Those of you old enough to remember this method of drafting can recall how frustrating it was to draw on linen. The linen fibers would get clogged in the tip of the ink pens and you had to shake the pen to get it started flowing again.

Every once in a while this shaking would result in a big glob of ink right where you were drawing. To put titles on the drawings, we used a Leroy set consisting of a lettering guide with scribe that had small ink cups where it touched the paper. The only technology I can recall was that Bill Burgess bought a couple of wide carriage typewriters and the typists rolled the drawings up in the carriage and typed our notes. Then, all we had to do was to draw the leaders and arrowheads, and a heavy line under the plan or detail titles.



*Tom Gibbens circa 1983*

Even in the '60's, we used separate sheets for lighting, power, communications systems, HVAC, and plumbing to make the drawings clear and uncluttered. We did not have CAD systems back then and so, for each project, we had to get a reversed print from the architect and trace over it to use for a background. Every time there was a change made to the floor plan, you guessed it, we had to update every sheet. Sometimes, we used sepia paper because we could take an original and make copies through a printer rather than retracing them several times. But for every change to the floor plan, we still had to update the backgrounds.

Making blueprints wasn't very easy. First, you had to run the print by overlaying the original with a piece of optically sensitive paper and then run just the copy through a second time through a chamber where ammonia trickled through a trough so that it would develop and turn dark to where you could read it. Sometimes the fumes from the ammonia were very strong. It wasn't until the late 70's that a fumeless developer came out which did away with the ammonia.

During the 60's, most typing was done on IBM Selectric II typewriters because you could change the font type or style by changing the ball in the carriage. In the early 1970's, we began to see word processors in the workplace, Some were bulky magnetic tape machines that were not very easy to go back into to edit. The first floppy discs that I recall were either 8" or 10" and the machine looked more like a piece of furniture next to the desk. Once this technology got started, the systems really began to develop. In the early 80's, the first computers began being used in offices, and even then, they were used mainly for the word processing. Nothing near what is available today!

> *"...hand lettering was a true art for some. I always felt that we had some of the most talented Drafters in the City when it came to lettering. It was beautiful."*

Simplifying backgrounds started changing in the late 70's to early 80's in the use of 'pin bars' where you would tape the pin bar to your drafting table and place the architectural background on the pin bar and then overlay a blank sheet of mylar with holes punched at the top so that all sheets could line up. You would then draw the particular discipline on the overlay then remove it and use a new sheet for a different discipline. This way you only had to draw one background or update it as changes occurred. It worked well, but 'check prints' always had some shifting of the alignment as it passed through conventional print machines. At least you could overlay the architectural sheets, HVAC and lighting sheets for coordination easily but this technology never really caught on.

Over the years, the media we have drawn on has changed considerably. Originally, we used clearprint vellum, sepia paper, or linen. We used lead to draw on the vellum and sepia but used ink on the linen. When we started using mylar, we used plastic lead because it did not smear as badly as lead. This required the use of different sharpeners and it was very easy to break the point or the plastic lead itself. It wasn't until the CAD systems of the 80's that we got away from this. Also, until AutoCAD began, hand lettering was a true art for some. I always felt that we had some of the most talented Drafters in the City when it came to lettering. It was beautiful. ***Continued next page***

# Continued...

*Words From Our President* ***continued from previous page.*** It was during the 80's that we really changed the way we prepare documents. We purchased our first license of AutoCAD in 1987. We could see value in the ability of this software to help us speed up producing each project and initially used it for details and schedules. Our use of it quickly grew and within the first year, we were using it for complete projects. We suffered through plotter issues learning the pros and cons of felt tip pins, conventional ink cartridges and ceramic tip pens. Plotting of drawings was a slow and time consuming. In 1988, we worked on a project for Sprint, in Herndon, VA and the job had approximately 40 sheets total in the bid set of MEP drawings. Bob Drake and Rick Anderson stayed in the office for 36 continuous hours to plot out the final documents, because the pins were prone to 'skipping' and if you didn't watch them, there may be information left off that you knew was there on the screen. We decided that if we were going to use CAD systems, we had to have an electrostatic plotter. It went from 45 minutes per sheet for a pin plotter to 2 minutes per sheet on the electrostatic plotter.

By the early 90's, a change occurred in who actually did the computer drawings. Up to this time, the Engineers and Designers generally red-marked the prints and gave them to a Drafter to put on the media. Initially, it was still true with the CAD systems but it began to change and the Engineers and Designers did their own drafting. There are only a few of us dinosaurs left who are not real proficient in CAD design.

Throughout the 90's the pace of software updates and enhancements increased and computers required more RAM and more memory to handle the larger drawing files and information contained in them. Faster plotters with color capability were developed and the crispness of the plots became much greater as laser plotters were rolled out.

Today, the pace of changing technology is that it turns over about every 18 months and even that is dropping. I can not even begin to imagine where this industry will be in the next 4 decades.

# ACCOLADES

**The NOAA La Jolla Laboratory Consolidation project**, a joint effort of Gibbens Drake Scott, Inc, Gould Evans, HDR, Transystems and San Diego based Architect| Delawie Wilkes Rodrigues Barker, has received one of four honor awards presented by the San Diego chapter of the American Institute of Architects. The honor award is AIA San Diego's greatest accolade, celebrating "extraordinary, thoroughly resolved architectural design, worthy of the profession's highest regard".


Kansas City based **Internal Revenue Service's Pennway Complex** is a Bronze Award winner in *Building Design + Construction's* 10th Annual Building Team Awards. The award recognizes inherent technical and aesthetic quality of the final project– excellence of design, engineering and construction– as well as team collaboration. GDS team members included JE Dunn, Structural Engineering Associates, Mark One Electric, US Engineering Co. and Lankford & Associates.

# On The Cover...

*Evolution of Change* ***continued from front page***...and has successfully certified several LEED projects including buildings at the Sprint Campus World Headquarters, the IRS Consolidated Campus in Kansas City, Missouri and the Weather Service Office in Annette Island, Alaska.

The development of LEED 2009 is a prime example of how the individual chapters have themselves continued to evolve. The local Kansas City Chapter has gone through an incredible growth spurt in the last several years, continuously changing and learning from lessons learned (sometimes hard ones). This growth spurt has been fueled by the ability of the USGBC to delegate the opportunities for change to the local level; allowing the individual chapters to shape the best direction and implement in their city or region. Heavily involved in both National and the local Kansas City Chapter, GDS is proud to be part of initiatives beyond the continual development of LEED 2009 such as: the New Orleans 9th Ward Reconstruction, Greensburg Kansas Reconstruction, the launch of Emerging Green Builders for Young Professionals, LEED technical training courses, LEED for Schools, LEED for Homes, as well as assisting several municipalities on how to build better communities.

Jay Guerra, Vice President for GDS and Vice Chair of the Kansas City Chapter, encourages all area businessmen and women to become involved with their local chapters of USGBC; membership costs are less than you might think and the work is very rewarding. The Kansas City Chapter offers monthly training and informational programs that provide attendees with the latest information on relevant topics such as BIM, FSC lumber, Legal aspects of Greening and other important issues.

The focus on improving our green building design and construction has most certainly come a long way. As the cost of gas and energy continues to rise, the USGBC continues to evolve and present itself a more prominent figure in the building industry. It will soon capture the attention of an even greater number of individuals Nationwide. GDS anticipates becoming more involved with USGBC and encourages others to join the exciting ever-changing organization.

While Tom Gibbens prepares to retire and GDS primes for many changes, we will reflect on the past and the strides that have been made within the industry. Then we will focus on the future and the continuous evolution into a greener design and overall improved quality of life.