As structural engineers, our role in sustainable design has expanded largely due to increased demands by building owners and the public-at-large to achieve greater efficiencies. Sustainable issues are much more global and prominent in nature among the A/E/C community due to the leadership of the U.S. Green Building Council and its LEED® rating system.

The LEED® rating system and those such as BREEAM, Green Globes (GBI) and Building for Environmental and Economic Sustainability (BEES) have elevated sustainable conversations and influenced the articulation of sustainable structures worldwide. Yet the sustainability success of a project should not be measured strictly on where it falls within these rating systems, as the sustainable goals and opportunities should be project specific.

**Performance-Based vs. Prescriptive Codes**

While the U.S. is making progress in adopting performance-based code provisions, we are still behind some other countries. In terms of sustainable design trends of the future, we must begin the conversation within the leadership of our communities. We need to rethink what can and cannot be allowed in terms of building codes while maintaining an emphasis on engineering safe, sustainable structures.

**The Role of Adaptive Reuse**

The model building codes allow building officials to permit the continued use of existing structures without upgrades to meet current code provisions provided there are no adverse safety ramifications. These provisions are key to allowing the adaptive reuse of our nation’s extensive stock of existing buildings provided the new use does not impose increased loading on the structure. While these are long standing provisions in model codes, many do not take full advantage of this when appropriate to justify the continued use of an existing structure.

In our view, the preservation of an existing structure is the ultimate in sustainability. With today’s advances in material choices, such as fiber-reinforced polymers, it is possible to save an existing structure and reduce the carbon footprint produced from demolition. Although cost is always a consideration, we have found that many of these structures can be converted into sustainable cost-effective structures using these alternative materials.

When dealing with an existing structure we need to calculate the carbon footprint of the demolition of the structure and replacement with that new structure in order to equitably compare the development approach. As structural engineers, it is incumbent upon us to provide a sum total of the project at hand if we are to be serious about creating a more sustainable future.

**Pioneer Hotel Adaptive Reuse Lubbock, Texas**

Built in 1926, the Pioneer Hotel reigned as Lubbock’s tallest building until 1955. Today, the 11-story historic reinforced concrete structure stands as an iconic landmark in this bustling West Texas city.

Because the hotel originally consisted of hotel rooms, the portions of the buildings planned for use as apartments or condominiums could be reused without significant modifications. However, the lower three floors of the building were planned to be reused as large public spaces for conferences and meeting rooms with higher associated live loads. As a result, JQ was engaged to recommend an appropriate structural solution that would allow for a safe conversion.

The firm recommended using a combination of fiber reinforced polymer reinforcement, supplemental steel framing and bonded concrete toppings, which enabled the hotel structure to be properly reinforced and continue to have a safe, viable use while maintaining the clear floor to floor heights.

With the production of higher strength steels and technology advances from other industries, it is possible today to preserve historic structures by incorporating these new materials. At the same time, the preservation of the structure truly minimizes the carbon footprint and provides a sustainable reuse of a well-regarded landmark.

Bottom: Grauwyler Park Library.

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Member Spotlight: Ian Cude, P.E.

Ian Cude, P.E. is a Principal and Vice President at M.W. Cude Engineers, L.L.C., a civil engineering firm established in 1980 that offers engineering, land surveying and planning services to the land development, municipal, public works and transportation sectors for a broad spectrum of projects. Ian recently joined SMPS, where he enjoys interacting with other members of the A/E/C community and building relationships.

Ian received a Bachelor of Science degree in Civil Engineering with honors from The University of Texas at Austin. Though Ian officially joined the Cude team in 1997, he first began working at Cude when he was only 13 years old. Now, with the firm’s 30-year anniversary, Ian and his brother, Josh, are ushering in the second generation of the family-owned business.

In his role at Cude, Ian enjoys building relationships with fellow employees, clients and people in the real estate industry. An active member of RECSA, PEPP and TSPE, Ian was named Young Engineer of the Year in 2006.

IAN TIDBITS
Ian lives in San Antonio with his wife, Jennifer, and their three children. He enjoys movie night at the house with his family, volunteering for church activities, snow skiing, playing sports, hunting, reading and traveling. He especially loves getting together with his extended family over a pot of spicy gumbo and playing Texas 42.

Welcome New Members

SEPTEMBER:
Ed Griffith – CDS/Muery Services
Lauren Guido – Guido Construction Company, Inc.
Samuel Nunnely – FA Nunnely Company
Jeffrey Whitefield – Liberty Mutual

OCTOBER:
Katrina Campbell – O verland Partners
Michelle Rees Clark – REES SA
Chris Szymczak – Alpha Testing, Inc.
Sergio Vela – Student Member
Melissa Weinig – TEAM Integrated Engineering Inc.

December:

NOVEMBER:
Carrie Combs – Combs Consulting Group
Dan Lombardo, Jr. – Walker Engineering
Nancy Parker – HTNB Corp

JANUARY:
Zac Harris – Joeris General Contractors
Josue Reyes – Skanska USA Building, Inc.

FEBRUARY
Christy Rhone - Raba Kistner
Neilesh Verma - Galaxy Builders, Ltd.

MARCH
Cindy Delgado - Lehmann Engineering, Inc
Leslye Hernandez - Cram Roofing
Jodi McCreary - Bain Medina Bain
David Murray - Murray & Associates, Inc.

Members on the Move

Abby Deras, CPSM started as Marketing Coordinator at M.W. Cude Engineers in January 2010.

This past October, Maggie Seyo, CPSM was named Director of Business Development and Marketing for M.W. Cude Engineers.


Matt Frey joined C.F. Jordan Construction Services in January 2010 as Director of Business Development.

Larisa Langley, CPSM started as Marketing & Communications Manager for Coyle Engineering this past November.

This past August Kristy Wood started as Marketing Coordinator at O verland Partners.

Katrina Campbell started in Client Services this past July for O verland Partners.

Melissa Lewis, CPSM of Pape-Dawson Engineers, was promoted to Director of Marketing this past September.

Amy Hartsack, of WestEast Design Group, was promoted to Marketing Manager this past October.

This past October, Vicki Thayer joined SpawGlass as Marketing Coordinator.

Melba Romero joined CP&Y Inc. as Marketing Coordinator last October.

Jamie Blakesley started in Marketing and Development at Goetting & Associates in January 2010.

Got Announcements?
SMPS is pleased to place your latest news, announcements, updates and newsworthy information in our newsletter. Please send your items to smpsnews@sanantoniosmps.org.
SUSTAINABLE DESIGN TRENDS
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Integrating Hybrid Systems
In order to remain relevant, the structural engineer profession of the future cannot be perceived as static and unchanging. We can help to identify materials that are regionally-specific and efficient. We can also suggest sustainable methods for preserving or deconstructing a building, depending upon its future use and related project costs and budgets. And we can develop structural systems which are efficient and relevant to the form and function of the facility.

We need to be open to changes in materials and design approaches that may offer greater sustainability. Hybrid systems combining the use of regional materials configured to take advantage of their best structural properties can offer strong, sustainable options. For example, natural stone in combination with steel cabling can be utilized instead of cast stone or precast concrete with conventional steel framing to create architectural elements such as sunscreens.

Grauwyler Park Library
Sustainable Hybrid Structural System
Dallas, Texas

JQ was engaged as the structural engineer for the Dallas’ Grauwyler Park Library. The firm recommended a roof structure that combined timber glue-laminated beams and high strength steel rods for the architecturally-exposed roof trusses.

In comparing the hybrid system for LEED submittal, it was observed that more traditional roof framing would have required 1,250 cubic feet of wood or 30,000 pounds of steel. The hybrid system, however, required only 475 cubic feet of wood and 4,500 pounds of steel to achieve the same structural capacity.

Striving for Optimum Use
With architectural trends towards using exposed structures and eliminating finishes, the building structure becomes more of an architectural statement. The use of exterior sunshading for reductions in energy consumption, for example, helps to define the exterior space of the building. These trends allow the structural engineer to highlight their work and creativity.

Paradigm Shifts in Construction Industry
From a sustainable viewpoint, BIM represents the future. BIM enables every component of the building to be modeled for efficiency. When the structure becomes part of the architecture, the structure has to be modeled to see how the systems interrelate to it.

Changes in the methods by which we conduct business can also have sustainable benefits. For example, the shift from tradition CAD to BIM can and should result in a more efficient methodology for the production of not only our work, but the work of the entire project team. BIM means less paper, greater electronic collaboration and electronic transfer to allow that coordination and interface to take place. BIM has the potential to bring the entire project team, including the contractor and the subcontractors, together.

In many cases, structural engineers are leading this transition to BIM.

The Need for Advanced Education
LEED training has provided a solid platform on which to build sustainable education, but LEED credentials are just one part of the future. The balance lies at the university and college level, prior to launching one’s professional career. We need to support higher education in raising the bar for both sustainable education programs and interdisciplinary studies. Many universities are already doing this, but they need industry support and leadership to achieve their goals. Not only are these institutions the source of our future employees, but we must also understand that the future of sustainability resides squarely on the next generation’s competencies in our field.

Conclusion
How can we as structural engineers contribute to sustainable design in the future?

First, we cannot be passive about what sustainability means and what we can deliver. We are uniquely positioned to have a seat at the table and a strong, compelling voice. What we do is not just about the project but how that project relates to everything and everyone around it. We must explain the impact on the community-at-large.

Second, we need to be strong advocates of education. The best structural engineers of the future will need to see the interrelationships and their value among the entire project team. We must understand the mechanical systems and how the decisions made about those systems will impact our structure. We must ask ourselves: “What can we do to contribute to the goal? How will we achieve greater efficiencies? Are the materials regional? If not, are there viable regional options? How are the materials being produced? Are they already waste materials, such as fly ash? We must strive to educate our clients and be students for life.

Third, we don’t need to be afraid to talk about the legal side of building codes. We need to advocate for performance-based ordinances. We need to push for sustainable solutions that are serious, safe and non-traditional.

Finally, we must walk the talk within our own company culture. How do we run our firms from a sustainable point of view? Are we sending out the best messages about sustainability by recycling, renovating our offices, using paperless technologies? Sustainable leadership must pervade a company’s culture from top to bottom if it is to be taken seriously.

The future of sustainability will not be about LEED credits for a bike rack and a shower or a low flow toilet. The future will be about the whole building envelope and its inherent design process. We must push for performance-based ordinances. By leveraging our structural expertise to engineer efficiently-designed and aesthetically-pleasing buildings that benefit the community, as much as the owner, developer or facilities manager, we will be champions of a sustainable future for all.

If you are interested in featuring an industry-related article/essay/commentary in our newsletter, please submit in Word format or include in your email to smspnews@sarantoniosmps.org.
Once again, the SMPS Southern Regional Conference (SRC) was a success. This year the hosting chapter was Austin, and of course, how could you not have fun in the Music Capital of the World? The conference opened up on Wednesday night with a Welcome Reception. But even before that event began, we all started gathering to share a few beverages and hugs with friends we haven’t seen in a year or longer. New faces were introduced and welcomed to the group and conference. The reception was a hit with free food and beverages and then many enjoyed the Austin nightlife afterwards. Thursday started off with the Leadership Roundtable. This session provides an opportunity for chapter leaders to share what is working and what they need help with within their chapters. As president of the San Antonio chapter, I was extremely proud as I participated in this group. Our chapter is experiencing success that is not common in the other regional chapters. Our growth and financial stability is unheard of during these economic times and as I sat there listening to other chapters ask how we are achieving this success, all I could think of was that we have an amazing board and very engaged chapter members. This chapter was put on the right path a few years ago and we have just grown stronger and better every year. So thank you to everyone who contributes to the success of our chapter – you have definitely been recognized by myself and all the other chapters in Texas and Oklahoma.

After my moment of pride, there was a round of breakout sessions that then led to a dynamic opening keynote address. Our keynote speaker was Hilary Fordwich, and she provided insight into what it takes to get clients and retain them. She shared many good ideas, but the one that stuck with me the most was a statistic that came from Dale Carnegie – “15% of an individual’s success is based on technical knowledge. The other 85% of success is due to the skill in human engineering personality and the ability to lead and work with people.” I think that quote sums up what the SRC is about. The main theme of most of the breakout sessions centered around how to get clients and prospects to trust us and want to work with us. Sessions at the SRC taught us the skills to become more likable, respected and trusted – the three things that Hilary said we need in order to influence others. And isn’t that what our roles in this industry are all about? The group event was held at Maggie Mae’s on Sixth Street Thursday evening. We got to enjoy Texas BBQ, drinks and music while showing Larry the Lobster what a night on the town in Austin was all about.

Conference wrapped up on Friday after a second keynote speaker and lunch. Great door prizes were given away and then we all had to say our farewells until National Conference or next year’s Regional Conference, which will be held in Houston. Our very own Jennifer Ornelas will be co-chairing the 2011 conference, so please let her know if you would like to volunteer some time and help plan this dynamic event. Being part of the SRC planning committee is a great experience that opens up doors for new contacts and the development of leadership skills. It is something I highly recommend getting involved with if you have the time.

In a word, the Southern Regional Conference is fantastic! Where else can you network with such a diverse group of marketers, learn leadership and professional development skills and have a great time doing it? As you’re creating your marketing budgets for 2010 and 2011, make sure you include this conference. It’s definitely worth your time and money. See you in Houston next January!
Haven for Hope, a new 37-acre one-stop homeless assistance campus located near downtown San Antonio, is on-track for a Spring 2010 opening and is expected to be the national model for homeless assistance centers. Designed by San Antonio-based Overland Partners Architects in association with O’Neill Conrad Oppelt, the $90 million project will include approximately 440,000 square feet of space and 998 beds under one roof, as well as a courtyard area with the capacity to sleep an additional 500+ individuals.

As one of the most comprehensive homeless facilities in the U.S., Haven for Hope’s “single-multiservice-campus” setting will go far beyond providing shelter for the homeless. It will be home to a wide array of services and amenities to help the homeless transform their lives, including shared classrooms and conference rooms for job skills and life skills training, a library and learning center, mail center, barber shop, exercise and recreational areas, a chapel, a childcare center with an after-school program, pet shelter services center with a seeing-eye dog training program, and a medical facility that will be the new home to more than 75 San Antonio-based agencies and organizations providing 150 different medical services including medical, dental, vision, mental health, substance abuse and other healthcare services.

The project has numerous benefits to the city of San Antonio, serving as a revitalization effort to the surrounding neighborhood through the addition of high quality new buildings and the renovation of several abandoned buildings. It is also expected to save taxpayers millions of dollars over the long run by providing access to services for those who in the past have continuously cycled through the jail and local emergency rooms.

**Project Profile:**

**CLEARY ZIMMERMANN**

**Utility Plant Expansion Project**

**Texas A&M Corpus Christi campus**

Based upon their vast experience with large-scale central plant experience, Cleary Zimmermann Engineers has been selected as the prime MEP professional for the Utility Plant Expansion Project on the Texas A&M Corpus Christi campus. The Corpus Christi campus is experiencing steady growth and the master plan calls for continued expansion in the coming years. Because of this, additional heating and cooling capacities must be made available to meet their increased demands. The scope of this expansion includes an increase of approximately 9,000 square feet; the installation of one 1,500-ton chiller, with space for another 1,500-ton machine; the installation of a 2,000-ton masonry shell cooling tower, with provisions for another cell of equal capacity; the provisions for two new boilers; and new primary and secondary pumps. When complete, this expansion will allow for a total installed capacity of 6,000 tons. The ultimate build out, which calls for the upgrade of original chillers, will have 9,000 tons of installed capacity.

The design is being completed using Building Information Modeling (BIM) software and is scheduled to be complete in spring of 2010. As this facility sits directly on the Gulf Coast, careful consideration has been given to construction sequencing and phasing around the hurricane season. Construction is scheduled to be complete in early 2011. The team players on this project include RVK for architecture and landscape; Jaster-Quintanilla for civil, structural and survey; Rock Engineering & Testing Laboratory for geotechnical engineering; Raba-Kistner for environmental; and AGCM for cost estimating.

**Project Profile:**

**HAVEN FOR HOPE**
Yates Construction recently completed construction on the new Bandera County Justice Center and Road and Bridge Facility in Bandera, Texas. The Justice Center consists of a 54,000 SF, 96-Bed Jail Facility, District Courtroom and Multi-Purpose Courtroom, Judges Chambers, Administrative Offices, Sheriff’s Offices, Probation Department, TABC, Training Facilities and Ancillary Facilities. In addition to the Justice Center, the project scope was expanded to include a new facility for the neighboring County Road and Bridge crew on the same 20-acre parcel. Public officials have expressed gratitude to Yates for donating limestone blocks for the façade of the Justice Center building.

Major building components include site utilities; public water system, including well, storage tanks, pumps and controls; wastewater treatment facility; concrete piers, concrete slab-on-grade, pre-cast concrete wall panels, pre-cast concrete hollow core planks; concrete masonry (CMU) interior walls, split-faced CMU exterior veneer, brick masonry veneer and pre-engineered metal building system.