



Phoenix Chapter of the Construction Specifications Institute

Cactus Comments

September, 2006

From the President

George R. Wadding, CSI

SOUTHWEST REGIONAL CONFERENCE

The regional conference is a great opportunity to learn through exchanging experiences with the leaders of other chapters in our region. Snowbird was the site of this year's meetings, hosted by the Salt Lake City Chapter. A premier skiing destination, it is also a delightful venue for summer gatherings. It will also be the site for October's CSI Academy training.

Training of the chapter Presidents and Presidents Elect, as well as Committee Chairs, are the focal point of the Regional Conferences. The business meeting also determines the activities of the Region, an important link with the Institute.

An unscheduled meeting conducted by Theresa Sullivan, Institute Marketing Manager and Joy Davis, Institute Communications Manager resulted in a frank and very useful exchange of the shortcomings of the Institute web site. Since the web site is an important informational and managerial tool, its usefulness is of crucial importance. Substantial re-design of the screens and enhanced access has already begun as a result of those discussions. We think you will like the changes. Eric Camin has been actively involved in this effort to improve the service.

An under-utilized resource on the site is the Forum exchanges. Each subject will now have a moderator who will supervise and see that the exchanges among members is fruitful and orderly. Look into them; you may well find them very helpful.

PHOENIX EARNING ITS NAME AGAIN

As someone who has lived here long enough to remember downtown Phoenix when major retailers and the first run-movie theatres were there, sub-urbanization brought many new realities, not all of them pleasant. Over the years, several grand designs were put forth only to be executed in part and then in discrete locations with little overall impact on the city's core. How awesome and pleasing it is to now see a significant redevelopment of the core through the T-Gen and Arizona Biomedical buildings, the new ASU campus, the first new hotel in decades, upscale residences and the reconstruction of the Phoenix Convention Center.

For the sake of full disclosure, I was one of those who remembered that a lot of money was spent to upgrade the Phoenix Plaza less than a decade ago. I also thought the north entry to Symphony Hall was impressive and that the open space north of it was a bit of visual relief. My reaction to the announcement that Phase I of the new Convention Center would be sited on that open plaza and that most of the existing convention hall would be demolished for Phase II was that I didn't really see the point or the need.

Although we were not able to arrange for a CSI tour of the recently completed Phoenix Convention Center, I was able to tour it with the Alliance for Construction Excellence after the last Project Delivery Methods Forum meeting.

We have the finest new convention center that could have been imagined. Clearly, a lot of thought went into the planning and the needs of groups meeting there were uppermost in the minds of all of those involved in its construction. When word gets around about the beautiful and colorful décor combined with the functionality of this facility, convention planners will be both excited and determined to bring their groups here.

When conventioners enter the soaring open space of the south entry atrium, they will be prepared for a great convention experience. Multiple flexible meeting spaces from deluxe Board of Directors size to a grand ballroom/dining hall will provide for various size groups' learning and socializing activities. The meeting rooms will provide all possible service needs for presentations without laptops on tables or cords strung all over. A full theatre with tiered seating and a stage in one location and a different setting combining both open space with a collapsible folding grandstand (concealed by curtains in the folded position) with plush theatre chairs are facilities which will provide tremendous flexibility for larger presentations.

A full banquet kitchen and wide service corridor back-of-house will facilitate a large dinner gathering while back-cabinet loading of food for the small intimate settings will eliminate the typical obtrusive serving stands.

Turning south from the grand entry atrium will lead fine arts patrons into a beautifully remodeled Symphony Hall. Impressive new hanging glass chandeliers grace the lobby. Redesigned seating and improved acoustics will provide patrons with new delights. The performance artists will appreciate the new venue equally since the stage is now air-conditioned unlike its original state.

Taken as a whole, in a few more years, the core of urban Phoenix will be a vibrant and exciting place with new economic engines, befitting the fifth largest urban center in the United States. Phoenix is indeed rising!

September Program

“A well-prepared project schedule can make the difference between a project that progresses smoothly and one that is characterized by delays and other problems. It serves as a road map, plotting out a logical succession of steps, from which a series of smaller, more specific tasks emanates. It also serves as a script showing the interactions of key project participants.”

That quote is from the *Project Resource Manual - CSI Manual of Practice* (Section 2.6). Even though we may not be directly involved in the development of a project schedule, every project team member is impacted by what it does show (or, sometimes, by what it doesn't show). Besides contractors, architects, engineers, contract administrators, material suppliers, subcontractors, and even owners, should have an understanding of what is covered in a project's schedule.

At this September's meeting we'll bring together three experts in the field of construction scheduling from a general contractor, a project management consulting firm, and a construction management firm. Each will give a brief presentation on construction scheduling from their perspective, covering the types of available software systems, management programs, and the future of construction scheduling.

Our panelists will be:

Ward Simpson, Parsons - 3D/I
Fred Friedl, Sundt Construction
Don Fredlund, PMA Consultants

Date September 6, 2006

Place Holiday Inn, Tempe / ASU
915 E. Apache Blvd.
Tempe, Arizona

ALTERNATE MEETING SURVEY

The Board of the CSI Phoenix Chapter has concluded its survey regarding the possibility of holding an alternate Chapter meeting at a different time, location, and/or day-of-week. A total of 80 members responded to the Chapter's first ever online survey.

Although the Chapter's Board held an assumption that an alternate meeting would be accepted, they really didn't know for sure. So, the idea of using an online survey was presented. The concept behind having an alternate meeting was to improve attendance at the monthly meetings and increase member participation. Currently, the attendance at each meeting averages somewhere between 60 and 80 members; the Chapter has approximately 203 members. If the survey was conducted at during a regular chapter meeting, the results would have been biased towards those who attend meetings on a regular basis. However, with the online method, the survey will reach all members, whether they attend meetings or not.

Not surprisingly, the results of the survey did support the concept of holding an alternate meeting. However, what was a bit surprising was the time. Most everyone one expected members to want a lunch meeting; but the results of the survey indicated otherwise. The popular responses to the survey questions regarding time, day-of-week, and location pointed towards an evening meeting, on the same day-of-week (Wednesday), but at a different location. In this case, the greatest response was for a location in the downtown Phoenix area. Additionally, most of the survey participants requested that the alternate meeting be held every other month (i.e. one meeting in Tempe, followed by a meeting in downtown Phoenix).

With this information at hand, the Board will begin its research into possible meeting locations in the Phoenix downtown area. This process won't happen over night, so the meetings will remain at the current location for the 2006-2007 fiscal year. Things that will need to be considered are the cost of the meals and room rental rate at the new location, plus, the possible impact that reduced meetings at the current location might have on costs there. If you know of any locations in the Phoenix downtown area that may meet the needs of the Chapter, please forward that information to a board member or a committee chair.

Some aspects of the survey will be implemented immediately in this coming year. The response was extremely high to contain the meetings to 1-1/2 hours. With the extremely positive response to the question about allowing the program to start while people are eating will help to achieve that time goal.

The Board is always looking for ways to improve the Chapter in areas of education, construction technology, and service to its members. However, a select few can't do this alone; get involved. Even if it's just 20 minutes a month, that would be 20 minutes less of the several hours that other members do apply to the Chapter. If you're interested in getting involved, don't wait to be approached by a board or committee member, ask what you can do to help. Contact Ron Geren at (602) 234-1140, or ron.geren@gouldevans.com. Become a part of what the Chapter can do you and the construction industry!

CSI Certification News

The Phoenix Chapter has set up for a special CDT exam to be held here in-town on November 18. Many of you have expressed an interest in the exam or in education. See the hot link below for the CSI registration site.

We are also going to have another 3-day construction documents seminar sometime in late October or early November. The Education committee will be meeting later this month to finalize the education plans. More info on the education seminar will be forthcoming.

If you are interested in the exam, or if you know someone who is interested, the final registration is September 19.

For any questions, please feel free to contact me.

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CSI Academies

The national CSI Academies are two-and-a-half-days of intensive education. The CSI Academies are tailored to enhance the professional capabilities of experienced product representatives, specifiers, construction administrators, architects, engineers and more. The program offers nearly 16 LUs and 1.6 CEUs of continuing education credits.

The Academies have general sessions for everyone and separate tracks for individuals who represent products, specify materials, or perform construction contract administration. Each track is presented by experts in their field on how things should be done. Product representatives lead sessions on product representation, specifiers teach about specs and product performance, and certified contract administrators lead sessions on CCA. Throw in a lawyer, a couple of guide specification development firms, and a professional speaker or two, and everyone leaves with some useful information. The best part - you register for one track and you can attend sessions from other tracks if they are of more interest to you.

Where - At the Snowbird resort in Utah (outside Salt Lake City) - terrific facility where the CSI Southwest Region Conference was held in July.

When - October 16-18, 2006

Use this link to access CSINET for additional info: www.csinet.org/academies

CSI is offering a special education promotion for those who register by the early bird and hotel cut-off deadline of September 12, 2006. They will be entered into a drawing to win a FREE CSI Webinar in 2007.

CSI Academies Information

2006 Academies Promo Flyer

Academy Matrix for Web

Refer a Friend Promo

http://www.magnetmail.net/actions/email_web_version.cfm?recipient_id=13921407&message_id=212456&user_id=Construct

COMMITMENT

R. Brian McClure, CSI, CDT

As I've traveled through work, life and love, I have made promises, accepted responsibilities for chores, tasks and duties, and even commitments. Commitment is an interesting word that has been on my mind lately.

What is a commitment?

Merriam-Webster defines a commitment as, "an agreement or pledge to do something in the future." It can also refer to sending someone to an asylum, but I will claim to know nothing of that, so my intention is to dwell on the first definition.

A commitment has three parts;

- the task
- due date/time
- acceptance of the task and deadline

The task can be simple to complex, from walking the dog, taking out the trash on Monday, starting a new company by 2006, becoming a Registered Architect within 5 years, or any number of items.

A time frame in which the task must be completed is a requirement of the commitment. If no deadline is established, you have created an "orbital commitment". Orbital commitments are commitments that are allowed to loiter, never being completed. They hover over your head, you know the task needs to be completed, there's just no reason to do it because of the lack of a deadline.

I was intrigued by this phrase, orbital commitment. It just hangs there, rotating around you; are you an earth with only one moon or a Jupiter with multiple moons. Yes, I've been guilty of making orbital commitments. It's easy to accept an orbital commitment, "Oh, yes. I will do that." Before you realize it, you've hung up the phone, walked away, or otherwise ended a conversation without putting or getting a deadline to the commitment.

Orbital commitments can also be generated without an acceptance.

What is acceptance? It's just the simple acceptance of the task and deadline; together these three items make a commitment. The acceptance is an integral part, because without it, the commitment lacks the desire and/or drive required to complete a task. This can lead again to orbital commitments.

No, I didn't always know the three parts of a commitment. I must recognize my current mentor, Curtis Slife, for helping clarify some of these simpler things in life, while he aids in my development of the complex things in business and Architecture.

Next time you attend a meeting and outstanding items are discussed, take note of who accepts these items. Do they willingly accept them? Do they make a deadline to complete it? Sit back and watch, see who makes a true commitment, who is forced to do something they have no desire to do, and who makes orbital commitments.

How do you address orbital commitments? You'll just have to wait to read my next article.

Just some meanderings from someone that desires to be committed...

R. Brian McClure, CSI, CDT is an Associate at FM Solutions, Inc. A relative newcomer to CSI, Brian has been in the Phoenix design industry for nearly 20 years and regularly attends the monthly meeting and participates in Technical Committee meetings.

THE CODE CORNER

Calculating Fire Resistance

By Ronald L. Geren, RA, CSI, CCS, CCCA

If you've ever worked on or with construction documents that involve fire-resistive construction, you're probably familiar with UL design numbers, GA file numbers, or building code prescriptive item numbers. These numbers identify construction assemblies that have been specifically tested for fire resistance. In order to be approved, an assembly must be installed as tested; any modification will likely be disapproved by the building official. However, in today's construction, some unique assemblies can't be identified using a previously tested assembly number; and having a special test performed for a project-specific assembly may break the budget. Fortunately, there are other methods to determine the fire resistance of an assembly without the financial impact and still comply with the building code.

Calculating fire resistance has been a part of model building codes for many years. The *Uniform Building Code* provided UBC Standard 7-7 which established criteria for calculating fire resistance of steel, concrete, wood, and masonry. The *International Building Code* has taken UBC Standard 7-7 and integrated much of the document directly into IBC Section 721.

Section 721 provides methods for calculating fire-resistance for individual construction materials and components that are integrated into a fire-resistive assembly. The fire-resistive time periods provided in this code section are based on historical testing of materials using ASTM E 119, which is an essential requirement of allowing alternate methods for determining fire resistance per Section 703.3: "The application of any alternative methods listed in this section shall be based on the fire exposure and acceptance criteria specified in ASTM E 119."

Specifically, the IBC provides alternate methods for calculating fire resistance in concrete, concrete masonry, clay brick and tile masonry, steel assemblies, and wood assemblies. The intent of this article isn't to explain in detail the various methods of calculating fire resistance for each material and assembly, but, rather, to provide a broad overview of what's available in the code and to cover some general concepts in calculating fire resistance.

Concrete Masonry

We'll start first with concrete masonry since it's a common material used in fire-resistive construction throughout the country, especially in single-story to low-rise type structures. Concrete masonry uses portland cement and aggregates to obtain its fire-resistive qualities; however, it's the aggregate that has the greatest impact on a concrete masonry unit's fire-resistance rating.

The IBC divides aggregates into four categories: pumice or expanded slag; expanded shale, clay or slate; limestone, cinders or unexpanded slag; and, calcareous or siliceous gravel. These are listed from lightweight aggregates to normal weight aggregates. As the weight of the aggregate increases, the fire-resistive rating of concrete masonry decreases; thereby, requiring thicker walls to achieve an equivalent fire rating when comparing lightweight masonry to normal weight masonry. Speaking of wall thickness...

The thicknesses provided in the IBC are the "equivalent thicknesses" required, and not the actual thicknesses. Since concrete masonry is considered hollow, the equivalent thickness is the effective fire-resistive thickness determined by dividing the net volume of the unit by the product of the length and width of the unit. For example, a standard 8x8x16 concrete masonry unit, with a net volume of 563 cubic inches, will have an equivalent thickness of 4.73 inches.

With the equivalent thickness and type of aggregate material at hand, consult Table 721.3.2 to determine the fire-resistance rating. If the masonry is made of expanded slag aggregate, the fire-resistance rating would be at least 4 hours. If an equivalent thickness is between two thicknesses in the chart, the fire-resistance rating can be interpolated. In the case of mixed, or "blended," aggregates, then the ratios of the various aggregates used are applied to the individual fire-resistance ratings for each aggregate to achieve the overall unit fire-resistance rating.

Brick and Tile Masonry

The fire-resistance of brick and tile (clay) masonry is similar to that of concrete masonry, by utilizing equivalent thicknesses in the calculation. However, because of clay masonry's limited material composition, the shape of the brick--hollow versus solid, filled versus unfilled--has a significant impact on the fire-resistance rating. In brick terminology, solid really isn't solid. To be considered solid, the cores of the brick cannot exceed 25% of the surface in the plane containing the cores.

Steel

Steel construction, on the other hand, has limited resistance to fire, although it is considered a noncombustible material. Steel loses its tensile strength very quickly as it absorbs heat from a fire. This has been a major concern investigated by the National Institute of Standards and Technology (NIST) following the World Trade Center collapse in 2001¹. At 1,022 degrees F., steel will lose approximately 50% of its yield strength; a temperature that can be reached in less than 10 minutes in a fire with a normal fuel load such as that in a typical office, leading to imminent collapse.

To protect steel from this premature collapse, steel members must be insulated from fire. Several methods are provided in the IBC, including concrete encasement, spray-applied fire-resistant materials, masonry protection, and gypsum board protection. The key to calculating steel fire-resistance protection is understanding the weight-to-heated-perimeter ratio, commonly referred to as the W/D ratio.

The W/D ratio for a steel shape is determined by dividing the weight per linear foot (W) by the exposed surface area of the steel member (D); the higher the ratio, the greater the member's fire-resistance, thus requiring less protection when calculating ratings for the various types of protection. The ratio can be increased by using a heavier member, or using a member with reduced exposed area (steel tube versus wide flange). The IBC provides some W/D ratios for common wide-flange shapes, as do some of the manufacturers of spray-applied fire-resistant materials.

Concrete

Like concrete masonry, concrete is a very fire-resistant material, which is why it is used throughout most Type I and II mid- to high-rise structures. The fire-resistance characteristics of concrete includes those of concrete masonry (they're both cement-based materials) and steel (used for reinforcing). However, concrete has a unique characteristic that isn't common in most other fire-resistant materials: the ability to shape the material into a variety of precast and cast-in-place shapes. Concrete, used commonly for floor systems and structural frames, has been thoroughly tested in a variety of horizontal applications. For any material, the fire exposure in a horizontal application is more severe than in a vertical condition. Therefore, based on its performance in horizontal fire endurance tests, concrete can be expected to perform equally or better in a vertical, or wall, condition.

Like masonry, concrete's fire-resistance is based on the type of concrete aggregate used and the equivalent thickness. But unlike masonry, the unique shapes provided by concrete construction require different calculations to determine the equivalent thickness based on the type of shape. These calculations can be somewhat daunting at first, but once you understand the formulas, the equivalent thickness can be quickly and easily derived. After determining the equivalent thickness, the fire-resistance ratings are determined using Tables in the IBC. For walls, the fire-resistance ratings are determined by Table 721.2.1.1, and Table 721.2.2.1 for floors and roofs.

For horizontal construction, the steel reinforcing becomes critically important--just as with structural steel. And, like concrete encased structural steel, the concrete insulates the steel reinforcing from the extreme temperatures of a fire. Therefore, adequate coverage of the steel reinforcing needs to be provided. IBC Table 721.2.3(1) provides the minimum cover for steel reinforcing based on aggregate type, required fire-resistance rating, and restrained versus unrestrained conditions. You can obtain the latter from your structural engineer.

Multiwythe Construction

Calculating fire resistance for multiwythe construction consisting of concrete masonry, clay masonry, or concrete, is provided in the IBC in Sections 721.3.3, 721.4.1.3 and 721.2.1.2, respectively. The calculated fire-resistance of multiwythe construction is generally greater than the sum of the individual fire-resistance ratings for each wythe of the wall, based on the theory that the thermal break of the airspaces and the overall wall thickness have a significant impact on a wall's ability to resist fire.

Wood Assemblies

Finally, fire-resistance ratings for wood frame construction are relatively straight forward to calculate compared to those of the previous materials. Fire-resistance ratings are determined by the sum of the assigned ratings to each of the assembly's components. For example, to obtain a 1-hour rated wall, you can use wood studs (regardless of depth) at 16 inches on center to get 20 minutes. Then, add a layer of 1/2-inch regular gypsum board on each side for an additional 30 minutes (15 minutes for each layer). We're now up to 50 minutes--10 minutes shy of our 1-hour minimum rating. So, we add glass fiber insulation to the spaces between the studs to get another 15 minutes, for a total of 65 minutes. All of these assigned numbers can be found in Tables 721.6.2(1 through 5). Additionally, these assigned values can be added to the fire-resistance ratings determined for each of the other materials discussed earlier in this article, thereby providing more flexibility to the type of assembly used.

Much of what is provided in the building code for calculated fire-resistance is based on information first released as early as 1918 and 1942². But new technology will eventually lend itself to new ways of determining fire-resistance. In the area of steel construction, “fire-resistant” steel is available, having the ability to retain almost 67% of its yield stress at 1,112 degrees F. About 3-1/2 years ago, a Chinese company announced it had developed a form of steel that can withstand temperatures of 1,080 degrees F. for up to 2.5 hours without yielding! Furthermore, spray-applied fireproofing took a hit in the 1970’s when the hype surrounding asbestos made its way into every aspect of building construction, but found new light during the same time period when intumescent technology was introduced to the construction industry.

Experience from tragedies such as the World Trade Center will always have an impact on how building codes are modified to some degree. But, extreme cases aside, resistance to the typical structural fire remains the foremost concern of building code development. For that reason, as innovative materials and technologies are developed, building codes will continue to adapt, and are expected to provide the same, or even greater, flexibility as they currently provide.

¹ “Fire Protection of Structural Steel in High-Rise Buildings,” NIST, July 2004, http://www.bfrl.nist.gov/pdf/GCR04_872.pdf

² The Time-Temperature Curve of ASTM E 119 has been a part of that standard since it was first published in 1918 as C19. BMS 92, “Fire Resistance Classifications, Building Materials and Structures,” was published by the National Bureau of Standards (NBS--the precursor of the National Institute of Standards and Technology, NIST) in 1942. For the most part, much of the information found in this standard is still considered relevant to this date.

To comment on this article, suggest other topics, or submit a question regarding codes, contact the author at ron.geren@gouldevans.com.

About the Author: Ronald L. Geren, RA, CSI, CCS, CCCA is the specification writer and code reviewer for the Phoenix Office of Gould Evans, and is an ICC Certified Building Plans Examiner. He is a 1984 graduate of the University of Arizona, and has held various technical and managerial positions for military, state, and private agencies.

GREEN STUFF

Stephen J. Andros, AIA/FCSI/CCS/LEED-AP

Apache Junction City Hall – Arizona’s Newest LEED Certified Building

USGBC notified the design-construct team this past May that the City Hall and Magistrate Court Building for Apache Junction had achieved LEED Certification. Achieving this award was a collaborative effort of the Owner, the Construction Manager, the Architect, the Architect’s consultants, the General Contractor, the subcontractors, the Commissioning Agent, and many other individuals. The decision of a municipal government to pursue LEED certification for this project was a balancing act between being a good steward of the environment, of being a good steward of the environment provided for the City’s staff and being a good fiscal steward. Each LEED credit was scrutinized several times throughout design and construction to determine if that credit would provide a good return on investment. This constant review and realignment of the points required to achieve LEED was only one of several obstacles to be overcome during design and construction.

Educating the design-construction team so that they could understand and meet the requirements of LEED was the biggest obstacle to overcome. For most of the team, this was to be their first LEED project. Each team member would have to absorb the additional costs related to LEED “ramp-up”, but with the understanding that these costs could pay dividends in their ability to participate in future LEED projects. DFDG, the Architect for the project, hired GrEn A/E Consultants to provide the LEED consulting and the LEED oriented specifications for the project. DFDG then went on to have several of their staff attend training to eventually become LEED Accredited Professionals. The General Contractor, CORE, opted to seek out training for its staff from Green Ideas and several of those staff became LEED Accredited Professionals. Having numerous LEED-AP’s on the project was advantageous since these individuals could communicate at the same level during subsequent meetings. In addition, having many people on the team versed in the requirements of LEED allowed for new ideas to be discussed and evaluated by the entire design-construct team.

Project budgets set before considering LEED as a project requirement can also be an obstacle. Although there is anecdotal evidence that LEED buildings are no more expensive than non-LEED buildings, there still are some costs related to LEED requirements that normally would not be included in a traditional building project. If the project budget is tight, and most governmental projects have tight budgets, these added costs may be difficult to absorb. Requirements such as building commissioning have costs related to them that typically are not included in building project budgets. In the case of the Apache Junction City Hall and Magistrate Court building, the Owner and Construction Manager opted to evaluate these additional costs and to find the necessary monies were a benefit could be demonstrated for that additional cost.

Energy conservation is a primary component of LEED. Compliance with, or exceeding, the Model Energy Code promulgated by ASHRAE is a hallmark of LEED. Some 80 percent of the buildings in the U.S. do not meet the standards of ASHRAE 90.1 and are using more energy than they should when held up against this standard. A prerequisite of LEED is to meet this standard, and this project meets this standard. There are credits that can be captured by exceeding this standard, however, it was determined during

design by the mechanical and electrical engineers that additional costs would be prohibitive to exceed the requirements of the Model Energy Code.

Daylighting is one way to conserve energy. By limiting the usage of artificial light to nighttime hours, the electricity cost for lighting is decreased along with the cost for cooling due to heat gain from lighting. However, one of the largest spaces in the building which houses the courtroom did not lend itself to large expanses of glass windows due to security concerns. Although a case was made to USGBC that the remainder of the building exceeded the percentages required, this credit was not achieved in the final analysis. The employees and visitors do appreciate the outstanding views of the Superstition Mountains and the excellent daylighting provided in the work areas.

Materials used in the construction of the building presented another challenge to the design-construct team. Although alternative materials such as rammed earth and straw bale have an environmental allure, they may not be the best choices for a municipal building. More conventional materials such as concrete and steel were used; however, these materials were carefully researched to ensure that the points for recycled content, regional sources and low emissions were achieved. Although the General Contractor was somewhat concerned throughout construction that these credits might not be captured, it was discovered upon final analysis that the percentages required by LEED can be achieved with some extra effort.

LEED includes 4 innovation credits that can be captured by exceeding the levels of compliance for existing credits, or by inventing new credits. Alternative methods of transportation are encouraged by LEED and the City of Apache Junction chose to provide "parking" for an alternative transportation method favored by its residents. A horse stable and hitching post was constructed on the property for use by employees and visitors. Letters from employees were submitted to USGBC to substantiate the value of this innovation, and USGBC opted to accept this innovation credit. Other innovation credits captured include green housekeeping which will help keep this new building "green." All four innovation credits were captured by this project.

The new City Hall and Magistrate Court Building for the City of Apache Junction is a testament to that city's concern and respect for the environment. The siting of the building, the choice of materials, the orientation of the glazing all speak to the citizen's desire to provide a home for the municipal government that responds to the desert that they live in. Congratulations to the entire design-construction team for achieving national recognition for this achievement!

Stephen J. Andros, AIA/FCSI/CCS/LEED-AP is the President of GrEn A/E Consultants who provided specification and LEED consulting for the Apache Junction City Hall and Magistrate Court. Steve is a founding member of the Arizona Chapter of USGBC and was the first LEED-Accredited Professional in the State of Arizona. Steve's firm is currently consulting on LEED projects in Las Vegas, Colorado, Utah, as well as Arizona and has consulted on several projects that have received LEED certification.

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