



Cactus Comments

May, 2006

From the President

Ronald W. Hand, CSI, CDT, AIA, NCARB, LEED AP
E/FECT. Sustainable Design Solutions

Look at the Phoenix Chapter Now!

We move into the month of May 2006 with our Chapter achieving strong gains in membership and member retention. The 50TH Annual CSI Show and Convention including CSI University in Las Vegas were a great success. Our Chapter golf tournament was a lot of fun and a financial success. Once again we thank our own Chuck Welch and crew for orchestrating another great event. Our April membership meeting was well attended with an in-depth look at the extensive Cardinals Stadium construction process. Thank you to Brent Leif of Hunt Construction for our Wednesday meeting presentation and on-site Saturday tour.

Our Phoenix Chapter and our national organization are moving forward at an accelerated rate with positive growth and development. I want to focus this month on our Chapter and the implementation of our three areas of focus for the year: 1) **Membership**; 2) **Awareness and Participation at all Levels of CSI**; and 3) **Commitment & Involvement**.

CSI Awareness Month evidenced a confirmation and update of our Phoenix Chapter Strategic Plan (March 2003). We are truly prepared and have a Chapter road map, complete with specific strategies, for the next three year period. Our committees are currently reviewing their committee strategic plans in an effort to provide us with specific committee tasks and milestones for success over the next three years. Please support your committees and help us finalize this planning process by the middle of May 2006. The Strategic Plan reinforces our three areas of focus and provides measurable and quantifiable tasks for Chapter goals. I commend all of you involved and currently our committees for establishing direction and goals to strategically guide the Phoenix Chapter now and in the future.

Our membership has grown to 208 with a retention rate of 91.8%. These membership statistics are very high and all of you, with the leadership of our Membership Committee, are responsible for meeting our greatest expectations. Our membership focus of increasing our numbers and new member involvement is stellar.

Chapter elections were completed as of April 12, 2006 and we can look forward to a strong Board and Committee Chairs for Fiscal Year 07. Congratulations to your newly elected Chapter leadership. You have assured Chapter leadership that will continue to provide the foundation for membership growth, development, support at all levels of CSI and commitment /involvement.

We counted over twenty Phoenix Chapter attendees at The 50th Annual CSI Show and Convention in Las Vegas, March 28 – April 1, 2006. Some of the attendees presented a brief account of their experiences from The Show at our April meeting. All accounts indicate that the exhibition hall was well attended and supported. The education sessions were varied in depth and breadth providing attendees with a wealth of opportunity. Our Phoenix Chapter received the bronze level Chapter Commendation award for our sixth consecutive year. The award was received at the Annual Meeting of the Institute on Saturday April 1, 2006. The award is an indication of a Chapter's level of function/performance, positive contribution to CSI as an organization and outreach to the construction industry community. You are all to be commended for your contribution to a healthy, vital and exemplary CSI Chapter.

Let's continue on this fiscal year with the same heightened level of vitality and goal fulfillment. I look forward to our Annual Awards Banquet on June 14, 2006. We will gather together at The Charthouse on beautiful Lake Camelback in Scottsdale for a wonderful meal and program presented by Valley Metro updating our greater valley area light rail project. We will then join in honoring our Chapter leadership and outstanding contributing members. We encourage you to bring spouses and friends for a memorable evening in celebration of our Phoenix Chapter CSI.

Make a **Commitment** and get **Involved!**

COORDINATION OF SPECIFICATIONS AND DRAWINGS

Owners want them...contractors want them...even design professionals want them. What am I referring to? Why, perfect construction documents, of course!

However, since we're all human, very little if anything can achieve perfection...especially construction documents. Even then, some owners and contractors still hold the notion that design professionals should provide complete, error-free documents. And, some design professionals will hide behind the "standard of care" provision, common throughout the country, to cover their errors and omissions.

The most common discrepancies found in construction documents are a result of discipline coordination, or more specifically, a lack thereof. Coordination of drawings and specifications prepared by hired consultants is an aspect of building design that can be understandably difficult to manage, but still remains within the design professional's control. However, the second most common cause of discrepancies is a failure to coordinate plans and specifications within a single firm, whether it is the primary designer or a consultant. Many of these "errors and omissions" can be easily reduced by taking simple steps throughout the design and document preparation processes.

This month's program will provide some insight on how better coordination can be achieved within the design professional's office. The information will be highly beneficial to new designers and specifiers just entering the career field, and will be a refresher for those with many years of experience behind them. For owners, contractors, and suppliers, you'll receive a better understanding of the issues behind document coordination. Bring your success – and "horror" – stories with you to share. The evening will be a fun night of learning and some games.

From this, hopefully we can lower those high expectations of owners and contractors, but still establish some means of giving them better documents—in other words, level the playing field between all parties.

For further information, read the article in the August 2005 AIArchitect, which focuses on the impact of CAD in the design profession: http://www.aia.org/aiarchitect/thisweek05/tw0805/tw0805bp_risk.htm

Our speaker for the program will be Ronald L. Geren, RA, CSI, CCS, CCCA who is the specification writer and code reviewer for the Phoenix Office of Gould Evans. He is a 1984 graduate of the University of Arizona, and has held various technical and managerial positions for military, state, and private agencies.

Date: May 10, 2006
Location: Holiday Inn, Tempe / ASU
915 E. Apache Blvd.
Tempe, Arizona
Social Hour: 5:30 p.m.
Dinner: 6:30 p.m.
Presentation: 7:30 p.m.

Reservations are required by Noon, Monday, May 8, 2006. Call 602-258-7499 (The Reference Library).

Update Your Member Roster Profile

Pamela Bir, CSI, CDT
Your Computer Lady

Each member can update their profile in the Phoenix Chapter Member roster. Of particular importance for the Industry members is the ability to make note of which Divisions you represent. Visitors to the site can do a search by Division number now.

1. Go to www.csiphoenix.org
2. At the bottom of the Home Page, enter:
 - a. Username: First name initial then Last name
EX: PBir, RHand, AGrum
 - b. Password: CSI Member ID
This number is on your membership card
 - c. The Member Roster will open on your screen.
3. In the top right corner in the **Name Quick Search** field, enter your last name.
4. Click the **Go** button.
5. Your Profile will come on the screen.
6. Click the [View Profile](#) link at the top of the profile box.
7. The profile window opens, click the **Edit** button to the right of your name.
8. DO NOT edit Username, Password or Contact Name fields.
9. Edit any of the other fields that need to be updated.
10. In a field that has a list of possible answers (like the CSI Division field), click on your first choice, hold down the **Ctrl** key on your keyboard and then click on all other selections you need.
11. When you are finished updating all the fields, click the **Save** button at the top or the bottom of the window.

Updating your member information for CSI national is completely separate from updating your info for the Phoenix Chapter. Go to www.csinet.org. Your Username is firstname@lastname. Your password is your member number.

Ten Tips to the Top of the Search Engines

Jill Whalen
High Rankings Advisor

Having a website that gets found in Google, Yahoo, and MSN, etc. isn't hard to do, but it can be difficult to know where to begin. Here are my latest and greatest tips to get you started:

1. **Do not purchase a new domain unless you have to.** Due to Google's aging delay for all new domains, your best bet is to use your existing domain/website if at all possible. If you're redesigning or starting from scratch and you have to use a brand-new domain for some reason, you can expect to wait a good 9-12 months before your site will show up in Google for any keyword phrases that are important to you.
2. **Optimize your site for your target audience, not for the search engines.** This may sound counterintuitive, but hear me out. The search engines are looking for pages that best fit the keyword phrase someone types into their little search box. If those "someones" are typing in search words that relate to what your site offers, then they are most likely members of your target audience. You need to optimize your site to meet **their** needs. If you don't know who your target audience is, then you need to find out one way or another. Look for studies online that might provide demographic information, and visit other sites, communities, or forums where your target audience might hang out and listen to what they discuss. This information will be crucial to your resulting website design, keyword research, and copywriting.
3. **Research your keyword phrases extensively.** The phrases you think your target market might be searching for may very well be incorrect. To find the optimal phrases to optimize for, use research tools such as KeywordDiscovery, Wordtracker, Google AdWords, and Yahoo Search Marketing data. Compile lists of the most relevant phrases for your site, and choose a few different ones for every page. Never shoot for general keywords such as "travel" or "vacation," as they are rarely (if ever) indicative of what your site is really about.
4. **Design and categorize your site architecture and navigation based on your keyword research.** Your research may uncover undiscovered areas of interest or ways of categorizing your products/services that you may wish to add to your site. For instance, let's say your site sells toys. There are numerous ways you could categorize and lay out your site so that people will find the toys they're looking for. Are people looking for toys to fit their child's stage of development? (Look for keyword phrases such as "preschool toys.") Or are they more likely to be seeking specific brands of toys? Most likely, your keyword

research will show you that people are looking for toys in many different ways. Your job is to make sure that your site's navigation showcases the various ways of searching. Make sure you have links to specific-brand pages as well as specific age ranges, specific types of toys, etc.

5. **Program your site to be "crawler-friendly."** The search engines can't fill out forms, can't search your site, can't read JavaScript links and menus, and can't interpret graphics and Flash. This doesn't mean that you can't use these things on your site; you most certainly can! However, you do need to provide alternate means of navigating your site as necessary. If you have only a drop-down sequence of menus to choose a category or a brand of something, the search engine crawlers will never find those resulting pages. You'll need to make sure that you always have some form of HTML links in the main navigation on every page which link to the top-level pages of your site. From those pages, you'll need to have further HTML links to the individual product/service pages. (Please note that HTML links do NOT have to be text-only links. There's nothing wrong with graphical image navigation that is wrapped in standard <a href> tags, as the search engines can follow image links just fine.)
6. **Label your internal text links and clickable image alt attributes (aka alt tags) as clearly and descriptively as possible.** Your site visitors and the search engines look at the clickable portion of your links (aka the anchor text) to help them understand what they're going to find once they click through. Don't make them guess what's at the other end with links that say "click here" or other non-descriptive words. Be as descriptive as possible with every text and graphical link on your site. The cool thing about writing your anchor text and alt attributes to be descriptive is that you can almost always describe the page you're pointing to by using its main keyword phrase.
7. **Write compelling copy for the key pages of your site based on your chosen keyword phrases and your target market's needs, and make sure it's copy that the search engines can "see."** This is a crucial component to having a successful website. The search engines need to read keyword-rich copy on your pages so they can understand how to classify your site. This copy shouldn't be buried in graphics or hidden in Flash. Write your copy based on your most relevant keyword phrases while also making an emotional connection with your site visitor. (This is where that target audience analysis comes in handy!) Understand that there is no magical number of words per page or number of times to use your phrases in your copy. The important thing is to use your keyword phrases only when and where it makes sense to do so for the real people reading your pages. Simply sticking keyword phrases at the top of the page for no apparent reason isn't going to cut it, and it just looks silly. (Purchase and read our [Copywriting Combo](#) for exact tips on how to implement this correctly.)
8. **Incorporate your keyword phrases into each page's unique Title tag.** Title tags are critical because they're given a lot of weight with every search engine. Whatever keyword phrases you've written your copy around should also be used in your Title tag. Remember that the information that you place in this tag is what will show up as the clickable link to your site at the search engines. Make sure that it accurately reflects the content of the page it's on, while also using the keyword phrases people might be using at a search engine to find your stuff.
9. **Make sure your site is "link-worthy."** Other sites linking to yours is a critical component of a successful search engine optimization campaign, as all of the major search engines place a good deal of emphasis on your site's overall link popularity. You can go out and request hundreds or thousands of links, but if your site stinks, why would anyone want to link to it? On the other hand, if your site is full of wonderful, useful information, other sites will naturally link to it without your even asking. It's fine to trade links; just make sure you are providing your site visitors with only the highest quality of related sites. When you link to lousy sites, keep in mind what this says to your site visitors as well as to the search engines.
10. **Don't be married to any one keyword phrase or worried too much about rankings.** If you've done the above 9 things correctly, you will start to see an increase in targeted search engine visitors to your site fairly quickly. Forget about where you rank for any specific keyword phrase and instead measure your results in increased traffic, sales, and conversions. (You can sign up for a [free trial of ClickTracks](#), which easily tracks and measures those things that truly matter.) It certainly won't hurt to add new content to your site if it will really make your site more useful, but don't simply add a load of fluff just for the sake of adding something. It really is okay to have a business site that is just a business site and not a diatribe on the history of your products. Neither your site visitors nor the engines really give a hoot!

Are we there yet?

Larry Gill, CSI
Gill Consulting

As we draw close to the end of our fiscal year we are on track to hit our secondary goal of 205 members. We now stand at 208. Our secondary retention goal was 90%. We are holding at 91.8%.

We are seeing new faces at each new meeting. That is great. We are going to enhance the membership committee next year to include Sales and Marketing and Publicity. This should enhance our membership efforts and provide greater opportunities in getting to know one another better.

We have a great program in May that should interest some new members. Don't be afraid to invite a friend or two.

New Members

Michelle Haupt, CSI
P.M. Taylor Development

Jeremy Sjolseth, CSI
Aeon Development

Alexandra Lemos-Duncan, CSI
Douglas Fredrickson Architects

Alexander Devereux, BS, CSI
ITT Technical Institute

Renewed

Jeff Beason, CSI
Premier Building Systems

Circle West Architects, P.C.

Neil Davison, CSI, CCS
Davison Associates

Francisco Murrieta, BS, CSI, AIA
SSPW Architects LLP

Stefan Dell'orso, CSI
Kelley Bros

Cary Stoneman, CSI
Orcutt/Winslow Partnership

Vicent DiBella, CSI, AIA
Saemisch, DiBella, Architects, Inc.

Robert Tamborski
Amkor Tchnology

Edward Freyermuth, CSI, CDT
Superlite Block

Liebert Thompson, CSI, AHC
Kelley Brothers

Peter Koliopoulos, CSI, AIA

Clinton Wilkins, CSI, CDT
Phoenix Cement Company

Tips for Painting Fiberboard and Particleboard

Tim Garver, CSI, CDT
Dunn-Edwards Paints

Fiberboard and particle board are reconstituted wood products that are made by forming small pieces of wood (i.e., wood chips, flakes, shavings) into 4-8 foot panels. The wood pieces are bonded together by a resin in the presence of heat and tremendous pressure.

Problems to look for:

- Paint can fail on the lap and butt joints and the edges of panels because those areas are susceptible to moisture intrusion.
- Wax used in manufacturing these products can migrate to the surface, especially in hot weather or if they are exposed to direct sunlight, and can cause adhesion problems.
- Applying a penetrating stain or semi-transparent stain will not provide adequate protection against moisture and sunlight. Avoid applying these types of products

Helpful tips for a quality job:

- Protect surface from moisture and excessive heat.
- Apply a high quality caulk to corners, joints, seams, cracks and other gaps to protect wood from water intrusion.
- Use flexible patching and caulking compounds to fill small cracks and holes.
- Prime all surfaces, edges and sides with a high quality multi-purpose acrylic primer.
- Two high grade acrylic finish coats over a primer will provide optimal performance.

These painting tips are in a series provide by Tim Garver, CSI, CDT – Dunn-Edwards Paint.

THE CODE CORNER

Allowable Building Area – Part 1

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

Imagine taking a project into the building department for plan review, and when you get the comments back (there are always comments), the first comment you read hits you like a ton of code books: “Building exceeds allowable area for occupancy and construction type.” Nothing says “design changes” more than exceeding the allowable floor area. Even a missing fire partition or having to add some fire-resistive-rated windows and doors (although annoying and costly) won’t equal the modifications necessary to make a project compliant with the allowable area of the building code.

Determining the allowable area is critical when making initial plans for a project. Although basic in building design, calculating allowable area is one of the most misunderstood applications of the building code. Under the previously published *Uniform Building Code* (UBC), calculating allowable area was confusing at best, and usually led to mistakes; fortunately, these were typically in favor of the architect (the permitted allowable floor area was actually greater). However, no matter whose favor a mistake was made, the mistake may have forced the project design in a direction contrary to the architect’s or owner’s desires.

Since the UBC is “old news,” I won’t dwell on its methods. But, it is important to highlight the significant differences, which I’ll do throughout this article.

Before proceeding with the actual calculations, there are three key items of information you should have, all of which was discussed in previous articles:

1. The classification of the building by occupancies (See my article titled “Building Classification – Part 1: Occupancies”).
2. Determine if you’ll use separated or nonseparated occupancies (See same article mentioned above).
3. The classification of the building by construction type (See my article titled “Building Classification – Part 2: Construction Types”).

To illustrate the methods of calculating allowable area, we’ll use the fire station example in my previous article on occupancies. In that article, we determined that the Type IIIA construction would be required, but that was based solely on the tabulated areas of Table 503. After talking with the owner, he wants to double the size of the fire station, but not increase the cost per square foot significantly. In other words, the construction type should remain the same. The increased actual areas and occupancy classifications for our fire station include the following:

<u>Space</u>	<u>Actual Area</u>
<u>First Floor</u>	
Office Area (B)	7,200 sf
<u>Apparatus Bays (S-2)</u>	<u>16,800 sf</u>
Total	24,000 sf
<u>Second Floor</u>	
Sleeping Area (R-2)	3,600 sf
Day Room (A-3)	2,000 sf
<u>Training Room (A-3)</u>	<u>1,600 sf</u>
Total	7,200 sf

We know from the previous article on occupancies, that the tabular allowable area for nonseparated uses for the building above is 14,000 square feet since the A-3 occupancy is the most restrictive for height, area, and construction type. We’ve, therefore, exceeded that limitation, so we must now take into consideration other factors permitted that can increase that allowable area.

Section 506 of the IBC addresses area modifications. It establishes a formula for calculating the allowable floor area based on the tabular areas of Table 503 plus increases due to open building frontage and for installation of an automatic fire sprinkler system. The formula for calculating area increases is very basic and easy to understand:

$$A_a = A_t + \left[\frac{A_t I_f}{100} \right] + \left[\frac{A_t I_s}{100} \right]$$

Whereas:

A_a = Allowable area per floor

A_t = Tabular floor area per Table 503

I_f = Increase due to frontage

I_s = Increase due sprinkler installation

The increase for sprinkler protection is not difficult to determine. If your building is protected throughout with an approved automatic sprinkler system per NFPA 13, then you may increase the allowable area by 200% ($I_s = 200$) for multistory buildings, or 300% ($I_s = 300$) for single story buildings.

The increase for frontage is a little trickier. To take advantage of this increase, at least 25% of the building perimeter must be on a public way or open space with at least a 20-foot width. To determine the increase, the IBC introduces another formula:

$$I_f = 100 \left[\frac{F}{P} - 0.25 \right] \frac{W}{30}$$

Whereas:

I_f = Increase due to frontage

F = Building perimeter that fronts on a public way or open space > 20 feet (feet)

P = Entire building perimeter (feet)

W = Width of public way (feet)

Additionally, the value of $W/30$ cannot exceed 1.0. So, if the actual width is greater than 30 feet, then only 30 feet can be used in the formula. This $W/30$ may be increased 2.0, but only if the building could qualify as an unlimited area building (which I'll review next month), but cannot because the only item restricting it from becoming unlimited area is the 60-foot minimum yard or open space. However, the largest increase that can be achieved is 75%. This is noticeably different that the UBC, which allowed an increase up to 100% depending on the number of sides that were considered open.

Now, let's take a look at our example fire station. The building will have a sprinkler system installed, and have the following perimeter and open frontage lengths:

Building Perimeter: 760 feet

Frontage with Open Space ≥ 30 feet: 680 feet

Frontage with 25-foot Open Space: 80 feet

Per Section 506.2.1, if the width varies, then a weighted average of the widths is to be used. Since the code doesn't define how the weighted average is calculated, the IBC Commentary does provide a method. To calculate the weighted average, use the following formula (W_i is the width of open space and L_i is the length of that width, and so on):

$$W = \left[\frac{W_1 L_1 + W_2 L_2 + W_n L_n \dots}{F} \right]$$

For our example, we would use the formula as follows:

$$W = \left[\frac{(30' \times 680') + (25' \times 80')}{760'} \right] = 29.5'$$

Since this is greater than 30 feet, then 30 feet will be used (remember $W/30$ can't exceed 1.0). With this information calculated, we can calculate the increase for frontage as follows:

$$I_f = 100 \left[\frac{760'}{760'} - 0.25 \right] \frac{29.5'}{30} = 73.75\%$$

And, finally, the calculation for total allowable floor area per floor:

$$A_a = 14,000sf + \left[\frac{14,000sf \times 73.75}{100} \right] + \left[\frac{14,000sf \times 200}{100} \right] = 52,325sf$$

This allowable area is greater than the actual area of 24,000 square feet, so the building can be constructed as a non-separated use building, with a total building area not exceeding 48,000 square feet (24,000 sf × 2 stories). Remember, the area we calculated is the allowable per floor. So, for a 2-story building, the allowable building area is 2 times the allowable area per floor, and a 3-story building will have an allowable building area that is not greater than 3 times the allowable area per floor. Buildings 4 stories and higher are limited to 3 times the allowable area per floor, with two exceptions: 1) Buildings permitted to have unlimited floor area, and 2) R occupancies, with an NFPA 13R system installed, can have an allowable building area equal to the allowable floor area per floor times the number of stories (which is limited to 4 stories). This is because a building with an NFPA 13R system installed is not permitted to have the fire sprinkler increase.

Next month, I'll discuss calculating allowable areas for separated occupancies and the provisions for unlimited area buildings.

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.