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## October Program

### Arizona Masonry Guild's "Architect's Guide to Masonry"

For the past year, the Arizona Masonry Guild (AMG) has been in the process of updating their popular "Architect's Guide to Masonry." Commonly referred to in the past as the "Gray Book," the new Guide has been completely revamped for the 2003 International Building Code, and has been given the new short title of "Blue Book" to reflect the blue color of the IBC cover (the old "Gray Book" was based on the 1994 UBC, which had a gray cover).

To celebrate Masonry Month, the members of the AMG are invited to join the CSI Phoenix chapter as the two key people involved in the update present what changes are being made. Ron Geren, CSI, CCS, CCCA, AIA, SCIP, and Canan D'Avela, CSI, will outline the significant changes that were involved in revising both the standards and the guide specifications, and the process used in making those revisions. Of special interest to many will be the changes to AMG's Standard 107, *Levels of Quality*.

Beside the 2003 IBC, the guide specifications, which make up a significant part of the Guide, were revised to follow MasterFormat 2004 numbers and titles. Other changes include a listing of applicable organizations and associations referenced in the documents, a cross referencing guide to Unifomat and OmniClass, and updates to reflect current standards.

If you're involved in specifying masonry, selecting masonry, or using masonry, you don't want to miss this program.

Date October 10, 2007

Place Hilton Phoenix Airport  
2435 S. 47<sup>th</sup> Street  
Phoenix, Arizona 85034  
(480) 894-1600

Time 5:30 p.m. - Social Hour & "Maynard's Corner"  
6:30 p.m. - Dinner  
7:30 p.m. - Program

#### Maynard's Corner

It's baaacck...the all new and improved "Maynard's Corner"!

To start off the new CSI year, we've brought Maynard Blumer, FCSI, FAIA, out of retirement to reinstitute his famous "Maynard's Corner". This is where attendees of the monthly chapter meeting gather together to discuss projects, problems, solutions, and ideas regarding the construction industry.

At 5:30 PM, in one of the corners of the meeting room, Maynard will be there to facilitate this first discussion. Specifiers (in-house and independent), architects, engineers, contractors, product representatives, owners, or anyone with an issue they want to bring to the table, are welcome to join.

## President's Message

*Ronald L. Geren, CSI, CCS, CCCA, AIA, SCIP*

*RLGA Technical Services*

*Phoenix Chapter President*

Well, I think we're off to a great start for the year. We had 69 in attendance at our first meeting of the year last month...and there were plenty of new faces. This year has some new changes and significant events for the Chapter. The first of which is the new meeting location...

### **New Meeting Location**

The renovation of the Holiday Inn in Tempe has prompted the Chapter to seek another meeting location, which may be permanent or temporary. We've worked out arrangements with the Hilton Phoenix Airport for the first three months. Based on the feedback from the attendees at September's meeting, the new location is a great improvement. We'll continue to evaluate service and cost to determine if we'll continue to hold meetings at the Hilton beyond the three-month trial period.

The Programs Committee is continuing its search for a possible meeting location in the central Phoenix area. But like the Holiday Inn, the light rail construction is creating some problems for access. Any specific suggestions for meeting locations are greatly appreciated. Hopefully, we'll have another location to try out for the meetings after the first of the year.

### **Southwest Region Conference**

As some of you are already aware, the Chapter has agreed to relieve the Las Vegas Chapter of its obligation to host the Southwest Region (SWR) Conference in 2008. The conference is scheduled for late April (most likely the 24<sup>th</sup> through the 26<sup>th</sup>). There are two reasons for doing this: 1) the national convention will be in Las Vegas in early June and the Las Vegas Chapter will have much on its hands getting ready, and 2) nobody wants to go to Las Vegas for conferences twice within two months of each other. In return, the Las Vegas will take our spot for hosting the conference in 2009.

The SWR Conference can be a big boost for the Chapter and CSI. For those familiar with the conference, we plan to deviate from the traditional format by opening up the conference to nonmembers through a variety of educational sessions in multiple tracks, similar to that at the national convention. The original intent of the conference will remain (president training, committee workshops, and the region general meeting). Other suggestions include incorporating the Chapter golf tournament into the conference.

But, in order to accomplish such a task, we need volunteers to handles the numerous tasks, both big and small, to make the SWR Conference a success. Some of the assistance we need includes:

- Finding and establishing the venue and accommodations
- Organizing educational sessions
- Speaking for educational sessions
- Designing a conference logo
- Handling publicity and registration
- Planning and coordinating the trade show
- Planning and coordinating the hospitality suite
- Planning and coordinating spouse/family activities

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(President's Message Continued...)

As you can see, the job is big, but with a lot of assistance, this work can be very manageable. If you're interested in lending a hand, please call (602-569-9645) or email ([ron@specsandcodes.com](mailto:ron@specsandcodes.com)) me.

### **The Return of "Maynard's Corner"**

The September meeting also saw the return of "Maynard's Corner" to the Chapter. H. Maynard Blumer, FCSI, FAIA, was elevated to Fellow in CSI in 1973 and in AIA in 1993. You can read about Maynard's background at <http://www.fcsinet.org/bios/BlumerH.pdf>. Maynard has returned from retirement to facilitate his old discussion group.

"Maynard's Corner" is an open forum held from 5:30 to 6:30 PM just before the regular Chapter meeting. And where do you find the forum's location you ask? Well, in the corner, of course. The forum, unlike the online types found on today's internet, is a face-to-face discussion where members and guests can introduce things they have learned and would like to share with others, or they can bring a problem they've encountered to seek solutions. We're glad to have Maynard's experience at our disposal, and it would be beneficial to everyone to participate in this unique Chapter benefit.

### **A Student Chapter in the Works**

Through the tireless efforts of the Chapter's Academic Affairs Chair, a new CSI Student Chapter is in the early planning stages. Andrea Stephan, CSI, CDT, a project engineer with Sundt Construction, has been working with students enrolled in ITT Technical Institute's new construction management program to establish a student chapter at the school.

Also, the Chapter's Professional and Industry Directors have been charged with the task to research and propose to the Chapter a new membership fee for students (as well as for retired members). Currently, students pay the student membership fee of \$27 at the Institute level, but must also pay the full Chapter fee like any other Chapter member to be affiliated with the Chapter. A reduced fee would encourage more young people to get involved in CSI earlier in their careers.

## Press Release



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### **ARCHITECTURAL AWARD-WINNING ENTRY HIGHLIGHTS PILKINGTON PROFILIT™ CHANNEL GLASS FROM TGP**

*DMJM Design's "The Art of Place Making" Takes Top Honors in Annual CSI Phoenix Chapter and Arizona AIA Imagination Cube Competition*

**Phoenix, Arizona, September, 2007** – The Construction Specifications Institute (CSI), Phoenix Chapter, and American Institute of Architects (AIA), Arizona Chapter, presented their 2007 Imagination Cube Design Award to a team from DMJM Design for its creative use of Pilkington Profilit™ channel glass. The winning entry, entitled "The Art of Place Making," used channel glass in a design concept for a public sculpture that mimics the free-flowing form of a viscous liquid.

The Imagination Cube competition, now in its eighth year, encourages students and professionals to explore imaginative designs of a featured building material – either functional, technical, spatial or artistic. The designs, which are presented digitally and are un-built, must fit within a 48-foot cubic space.

This year's Imagination Cube competition featured Pilkington Profilit channel glass from Technical Glass Products (TGP). All designs were required to use Pilkington Profilit as a key feature. The Pilkington Profilit glazing system consists of unique, self-supporting, "U"-shaped glass channels and an extruded metal perimeter frame. It can be installed vertically or horizontally, and formed into straight or curved walls in interior or exterior applications. Popular in daylighting designs, Pilkington Profilit is available in a variety of textures and colors with varying degrees of translucency, allowing light through while maintaining privacy. Nanogel® insulating aerogel can be used in conjunction with the product to provide enhanced energy efficiency, and tempering and filming allow it to be used in areas requiring safety glazing.

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“A major focus for TGP is working with architects and designers to provide glazing solutions that meet their unique design challenges and expand their design options,” says Jeff Razwick, director of business development for TGP. “The Imagination Cube competition is a great way to inspire innovative designs and we’re pleased that CSI and AIA selected Pilkington Profilit as the featured product this year.”

The award was presented during the American Institute of Architects Arizona 2007 Celebrate Architecture Awards Gala held September 8, 2007 at the Phoenix Art Museum. The members of the DMJM Design winning team, Brett Oaks, Michael Powell and Fermin Gonzales, won a trip for two to Chicago, a glass cube trophy, a certificate, and a check from the companies co-sponsoring the competition.

In addition to the winner, two honorable mention certificates were presented. One was given to Benjamin Ayers of the SmithGroup for his design “Two Rivers – A Monument to the Waters of the Pima-Maricopa” and the other to Doug LaCombe of the SmithGroup with a design titled “Crossing.”

#### **About Technical Glass Products**

Technical Glass Products (TGP) is your one source for fire-rated glass and framing systems, along with specialty architectural glass products. The company offers AIA accredited continuing education, project consultation, product specifications, CAD drawings and rapid-response quoting. For more information about TGP’s products and services, call (800) 426-0279 or visit [www.fireglass.com](http://www.fireglass.com) (fire-rated glass) or [www.tgpamerica.com](http://www.tgpamerica.com) (architectural glass).

## Technical Articles

### **Gypsum Area Separation Walls:**

#### ***The Sensible Solution for Townhouse Fire and Sound Protection***

By Michael Gardner

Gypsum board townhouse separation walls – also known as area separation walls, fire walls, or party walls – are perhaps the most cost-effective and time-efficient systems available for providing fire protection and sound attenuation in multi-family construction.

Moreover, they provide these benefits while responding directly to contemporary building code requirements calling for individual townhouse units and similar multi-family dwellings to be separated by fire-rated construction.

Gypsum board townhouse separation walls can be installed in almost any weather condition and are typically used in townhouse, apartment, and condominium construction. They are also ideal for light commercial construction, providing fire protection and sound attenuation between commercial workspaces in strip malls.

#### **Code Compliance**

The model building codes require all area separation walls to meet the following design criteria:

- They must be continuous from the foundation to the underside of protected roof sheathing or continue through the roof to form a parapet, and;
- They must allow for the collapse of the construction on the side of the wall exposed to fire while remaining intact to protect the structure on its opposite side.

Every model building code permits the use of gypsum area separation wall systems where fire resistance and sound attenuation are required.

#### **System Types**

Gypsum board townhouse separation wall systems are generally available in cavity-type or solid systems. Cavity-type systems are typically constructed using components such as gypsum liner panels and methods found in steel stud partitions or shaft wall construction normally used to protect stairwells and elevator shafts.

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Solid gypsum board area separation walls use three basic components:

- One-inch thick type X gypsum board liner panels that are 2-feet wide and either 8-, 10-, 12- or 14-feet long.
- Metal framing members, consisting of 2-inch-wide H-studs and U-shaped track.
- "Break away" L-shape aluminum clips that soften at relatively low temperatures.

The area separation wall is attached to the adjacent building's structural framework using L-shaped aluminum clips, which are fastened to the area separation wall's steel H studs and the structure of the townhouse. The clips connect each H stud on both sides with the adjacent floors or roof/ceiling intersections to keep the area separation wall in place between the two structures.

The aluminum L clips are manufactured to soften at about 1100 degrees F. Consequently, when they're exposed to the heat of a fire on one side of the area separation wall, they break away between the steel and the wood frameworks and allow the burning structure to fall away while leaving the area separation wall in place.

Because the gypsum board panels prevent the heat on the "fire side" from reaching the opposite side, the aluminum clips supporting the wall on the non-burning side remain intact and prevent the fire from spreading.

Aluminum clips used to connect gypsum area separation walls to adjacent buildings must be specified in the tested design to ensure that they perform properly during a fire. Clips must be fastened and installed in conjunction with system directions.

In addition to defining fire-resistance requirements, the model building codes typically require walls separating townhouse units to maintain a minimum Sound Transmission Class (STC) rating of 45 to 50 to ensure that proper sound attenuation occurs between individual units.

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Michael Gardner is the Executive Director of the Gypsum Association of Washington, D.C.

# Interesting Facts

- The hammer is the oldest human tool, perhaps even older than the earliest *Homo* species.

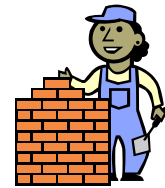


- The Akashi-Kaikyo Bridge has the largest span of any bridge

- The Strait of Messina Bridge, with a center span of 3,300 m, was planned to connect Italy and Sicily and was cancelled on 11 October 2006.

- The under construction Burj Dubai in Dubai, United Arab Emirates is the world's current tallest freestanding structure on land, rising 564.9 m (1,853 ft). When completed, it is planned to rise over 800 m (2,625 ft).

- Brick is one of the world's first building materials.



- The Channel Tunnel connecting England and France is the most expensive railway tunnel ever built.

- Itaipú Dam is the world's largest hydroelectric power plant.

- The Diamond synchrotron facility in Oxfordshire, England, produces a highly focused beam of light 10 billion times brighter than the Sun



- The Ferris wheel is considered an engineering wonder.

- Two U.S. Presidents had engineering backgrounds.



# The Code Corner

## Construction Documents

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

Some of you may be wondering what construction documents have to do with understanding the building code; thinking that construction drawings are used only to obtain the permit and build the building. “Used to obtain the permit”--that is the key. In other words, no construction documents means no permit and, therefore, no building. End of story.

Under the building code, what are construction documents? Architects, engineers, and contractors know what types of documents are necessary for the proper execution of a construction contract; however, do those documents need to be identical to the documents submitted to the building department for plan review? The answers to these questions may surprise you.

To answer the first question, we turn to the Construction Specifications Institute (CSI). The CSI defines construction documents in *The Project Resource Manual - CSI Manual of Practice* as “the written and graphic documents prepared or assembled by the A/E for communicating the project design for construction and administering the construction contract.” Typically, they consist of drawings, specifications, and, according to the CSI, procurement requirements (i.e. solicitation, bidding/procurement instructions), contracting requirements (i.e. agreement, conditions of the contract, modifications), and resource drawings (i.e. existing building record documents). All of these may be submitted to the building department for plan review, but all may not be necessary for determining compliance with the building code.

So, maybe the question needs to be refined: what construction documents *are* required to be submitted for plan review? Well, the 2006 *International Building Code* isn't as specific as one would expect. In Section 106.1, Submittal Documents, it states, “Construction documents, statement of special inspections and other data shall be submitted in one or more sets with each permit application.” Pretty vague. Therefore, it is necessary to check out the definition of “construction documents” in Chapter 2 of the IBC:

Written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of a project necessary for obtaining a building permit.

Still fairly generic, but the first part of the definition above is very similar to the one provided by the CSI; they both refer to construction documents as being written and graphic. It is the interpretation of this phrase that has some design professionals and building officials at odds.

Under the former *Uniform Building Code* (UBC), the list of submittal documents was a little more precise: plans, specifications, engineering calculations, diagrams, soil investigation reports, special inspection and structural observation programs and other data. With the inclusion of specifications in that list, it can be construed that specifications are, and should be, a document reviewed by the building official. Even though the IBC's definition is less exact than the UBC's, it would make no sense for the IBC

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to reduce the intent of submittal requirements for plan review from previously published model codes.

To most design professionals, written and graphic documents are in reference to drawings and specifications. However, some building departments view these as drawings with notes. Thus, specifications are either not requested for plan review, or they are considered irrelevant and not reviewed by the building official. In one case, in which an architect responded to a review comment stating that the item was in the specifications, he received the following response from the plans examiner: "Note on the response sheet that this item is in the specifications is unacceptable. Specifications are not accepted and are not part of the plans." It should be made clear, however, that not all building departments view specifications in this manner. All differences aside, if a design professional submits specifications along with the drawings, is the building official obligated to review the documents? The answer to that is a simple "yes."

The International Code Council's (ICC) *Plan Review Manual Based on the 2003 IBC* states, "Where there are specs, the plan reviewer must explore them fully during the review process because it is not uncommon to include information in specs that does not appear in the plans." Additionally, in the *Plan Review Manual* published by the former International Conference of Building Officials (ICBO), it states:

For the plan reviewer, the plans and specs are considered *as a whole*. Whether or not specific items appear in all working documents is of small amount, so long as they do appear someplace and are not contradictory with other portions. From this point of view, then no fragment of the plans and specs takes precedence over other fragments. The documents must be considered as a whole. [Emphasis in original]

It is clear from these publications that all construction documents submitted--drawings and specifications--must be reviewed by the plans examiner during the plan review process. Therefore, code-related information that is included in the specifications and not on the drawings is acceptable, provided the information meets or exceeds the minimum requirements of the code.

Based on the preceding paragraphs, the documents submitted for plan review can be in any form that the design professional deems necessary to convey the compliance of the project to the adopted building code, provided the information prescribed in Section 106 of the IBC is covered in the construction documents. Even though the design professional may feel that the construction documents adequately convey the required information, the building official may still require additional information if he or she determines that the information in the documents is insufficient to show compliance with the building code. However, review comments should not dictate specific methods of achieving compliance. For example, if the comment states that panic hardware is required on certain doors, the comment should not direct the design professional to add this information to the door schedule. The design professional should have full control of where to place this information; he or she may decide to place the information on the door schedule on the drawings, or in a door hardware schedule located in the specifications that is cross-referenced to those doors in the door schedule.

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Now for the second question previously introduced: should the documents used to obtain the permit be identical to the documents used to build the building? To answer that, the last parts of the CSI and IBC definitions for construction documents require further study.

Recall the CSI definition: the last few words state "...communicating the project design for construction and administering the construction contract." The last part of the IBC definition states "...necessary for obtaining a building permit." The CSI definition focuses solely on the construction document's application to the actual construction of the project, whereas the IBC definition is only concerned with their application to obtaining the permit. Based on this, design professionals may submit one set of documents to the building official for permitting, and issue a different set of documents for bidding and construction. Nonetheless, the design professional who does issue different sets to the building department and contractors must keep two very important items in mind.

The first item is found in IBC Section 106.4. This section requires that the work "be installed in accordance with the approved construction documents." Consequently, any changes to the approved documents must be resubmitted for approval as an amended set of documents. This means that the set of documents issued to the contractors, although not identical to the plan review set, cannot modify the essential elements of construction shown on the documents that are relevant to permit approval. It is also important to mention that the approved documents will be enforced, even if they show construction that exceeds the minimum requirements, unless the changes are approved via resubmittal. For example, if the project was approved by the building official using Class A finishes in corridors, but the design professional changed them to Class B finishes when issued to the contractor, then the finishes will need to be resubmitted for approval, even if the Class B finish is acceptable per the building code.

The second item, found in IBC Section 106.3.1, requires that one set of the construction documents, stamped "Reviewed for Code Compliance" by the building official, must remain available at the project site. This set of documents is subject to inspection by the building official or authorized representative when they visit the project site. This allows the inspector to compare the actual construction to the approved documents, even if the documents the contractor is using are not identical to the approved set.

Building officials often complain about the quality of construction documents submitted, while design professionals and specifiers complain that building officials don't understand the relationship between all the elements of a set of construction documents. The truth is, they are all right. With the introduction and evolution of computer-aided drafting (CAD), architects and engineers can now make mistakes at the speed of light with a click of a mouse button, and they organize drawings in a manner that makes it quite difficult for the building official to ascertain a project's compliance with the building code. On the other hand, building officials reject or overlook the specifications and require multiple notations on drawings that are either unnecessary, repeat information provided in the specifications, or both. The solution to these problems is education.

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For the design professionals, providing clear, complete, concise, and correct documents is only possible through acceptance of recognized industry standards on organization and formatting of construction documents, including the training on how to properly implement them. For specifications, the CSI provides several standards on organization and format. The most recognized CSI standard is MasterFormat, which establishes a numbering classification system for project manuals and other construction-related information. The CSI, along with the American Institute of Architects (AIA) and the National Institute of Building Sciences (NIBS), have developed the National CAD Standard and Uniform Drawing System (NCS/UDS). Included in the UDS is a module specifically developed to provide building code-related information on construction documents. Module 8, Code Conventions, was incorporated into the UDS in 2001, and includes standards for code-related graphic symbols and information locations.

For building officials and their staffs, supplementing code-specific training with educational courses on construction documents, construction contracts, and the complementary nature of these documents will illustrate the use of these documents beyond just permitting. Understanding how construction documents should be organized will reduce comments that ask for information which is already provided elsewhere in the documents. Obtaining a basic knowledge of the project manual concept, and how specifications can provide much of the information plans examiners are looking for, will reduce requests for duplicate information in other areas of the construction documents, thereby avoiding the potential problem of conflicting information.

The building code establishes the minimum criteria to which the building official reviews construction documents for compliance. Design professionals need to understand and appreciate this duty required by the building official. And in turn, building officials need to understand that the liability for compliance with the building code *and* the building's owner's requirements lies squarely with the design professional. Building officials should not participate in the development of the building design; nor should they dictate specific requirements for content of construction documents beyond that prescribed in the building code. A set of construction documents is the bridge between design and construction execution, and the pier supporting that bridge is the building permit--without it, the whole thing won't stand. Through cooperation and mutual understanding of the roles and responsibilities of the building department and the design team, this bridge will be erected and maintained until project completion.

*To comment on this article, suggest other topics, or submit a question regarding codes, contact the author at [ron@specsandcodes.com](mailto:ron@specsandcodes.com).*

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