

MINUTES OF THE
MARICOPA ASSOCIATION OF GOVERNMENTS
BUILDING CODES COMMITTEE

August 17, 2011

Avondale Civic Center
11465 W. Civic Center Drive
Sonoran Room
Avondale, Arizona

COMMITTEE MEMBERS

Ken Sowers, Avondale, Chair

Phil Marcotte, Buckeye

*Mike Tibbett, Carefree

Mike Baxley, Cave Creek

*Martin Perez, Chandler

*Mary Dickson, El Mirage

*Peter Johnson, Fountain Hills

*John Smith, Gila Bend

*Jo Rene DeVeau, Gila River Indian
Community

A- Ray Patten, Gilbert

Tom Paradise, Glendale

Ed Kulik, Goodyear

*Chuck Ransom, Litchfield Park

Tom Ewers, Maricopa County

Steven Hether, Mesa

Bob Lee, Paradise Valley

*Dennis Marks, Peoria

Julie Belyeu, Phoenix

A-Dean Wise, Queen Creek

Dustin Schroff for Michael Clack,
Scottsdale

A-Michael Williams, Tempe

Dale Crandell for Mario Rochin, Tolleson

Rick DeStefano, Wickenburg

*Jim Fox, Youngtown

Jackson Moll, Home Builders Association

OTHERS IN ATTENDANCE

Scott Wilken, MAG

Jonathan Widney, Solibri

JD Sherrill, Solibri

Russ Sanders, Orcutt/Winslow

Brett Harris, Avondale

Randall Westacott, Avondale

Bruce Dimmig, Project Resource Origins

*Those members neither present nor
represented by proxy.

A-Those members participating via
audioconference

1. Call to Order

Ken Sowers, Chairman, called to order the August 17, 2011 meeting of the MAG Building Codes Committee (BCC) at 2:01 p.m.

2. Introductions

Voting members Michael Williams, Dean Wise, and Ray Patten attended via telephone conference call. All members and guests introduced themselves.

3. July 20, 2011 Meeting Minutes

It was moved by Bob Lee, seconded by Phil Marcotte and unanimously recommended to approve the July 20, 2011 meeting minutes.

4. Call to the Audience

There were no comments from the audience.

5. Comments From the Committee

Bob Lee commented that the Arizona Building Officials, AZBO, Fall Educational Institute will take place October 3-7 at the Prescott Resort. He also said the course list and registration are available on the AZBO website, azbo.us. He also said that at the next Central Arizona International Code Committee, ICC, Chapter meeting there will be discussion of scholarships to the AZBO Fall Educational Institute.

Tom Paradise asked about the classes being offered at the AZBO Fall Educational Institute. He asked if anyone can suggest classes to be taught. Bob Lee responded that, yes, anyone can suggest classes by sending an email to himself, Ray LaHaye, Steve Brown, or Bill King. Ken Sowers said that class suggestions could be sent to him, as well.

Tom Paradise mentioned that he was interested in a class on how to do outside air calculations. Ken Sowers said that it is too late to add another class to the Fall Educational Institute, but it would be a good topic for the Spring Educational Institute.

Bob Lee said that the next Central Arizona Chapter of ICC will be held September 8, 2011, at the League of Cities of Towns building at 1820 W. Washington.

Bob Lee talked about a recent incident in Paradise Valley in which a fire hydrant, which had been positively located twice in the past year, has gone missing, and asked if any other member had seen this problem before.

Scott Wilken told the committee that Ecotality is conducting a survey of member agencies regarding electrical codes, and that MAG will be giving the email addresses of the committee members to Ecotality so they can be contacted individually. The members should expect to get contacted in the next few weeks.

6. Building Information Modeling

Russ Sanders from Orcutt/Winslow and Jonathan Widney from Solibri gave a presentation on building information modeling (BIM). Russ Sanders said that BIM allows architects and engineers to virtually construct buildings in three dimensions in the computer environment, and that allows the user to analyze the building and check various aspects of performance of the building, such as energy analysis or acoustical analysis. He said that BIM can also be used to locate the building geospatially, as seen in Google Earth.

He said that BIM allows the user to convert an Excel spreadsheet containing lists of names and places into three-dimensional boxes and then reconcile the adjacency of those spaces. He said that existing buildings can be laser scanned to produce point feedback and then brought into the BIM software to be modeled by the architect. He said that BIM allows the user to bring parametric objects into the model, and use a cabinet as an example, saying that an individual cabinet could have many different options and styles, and then can be inserted into the model. Bob Lee asked if Russ selects the parametric objects from a library of things. Russ replied that Orcutt/Winslow has a large library of objects that they choose from, including some parts that come with software, some manufacturer-specific parts, and some that the firm has designed.

Russ Sanders described how BIM is used to collaborate online with design professionals in other places, and allows all participants to work in the same model at the same time. He also said that if you have multiple modules that are repeated in a building, like hotel rooms, you can work on one room, or have multiple people work on one room, and then have the software populate that room throughout the hotel as desired. He said that the BIM software has allowed Orcutt/Winslow to bid on more design jobs around the country, with collaborators in different cities working on the same project.

Bob Lee asked if this software gives designers the ability to simply produce more and more paper, or will they be able to supply municipalities with electronic documents that can be reviewed electronically. Russ Sanders answered that in the future he believes design firms will be contracted to a model rather than a set of documents, and that they will be submitting the model to municipalities for review.

Russ Sanders described how BIM models can be used for clash detection. He said, for example, if you have a mechanical model, electrical model, and plumbing model, the software can show how those different elements interact and find places where they might clash during construction. He said that this is particularly useful for general contractors to plan out phases of construction.

Russ Sanders continued that in their office, their documentation is moving more toward three-dimensional sections, showing more detail than in traditional plans. He then described how BIM models are used by contractors and tradesmen, who link cost and schedule to the model dynamically. He said that contractors are able to animate the construction sequence. He said that contractors look for clashes in geometry, but also for clashes in staffing to ensure that different groups of people are working on the building at different times to spread them out more over time and not have a lot of workers at the same place at the same time. He also said that BIM can be used to make virtual mockups, to demonstrate exactly how different pieces of the building would be assembled. He said that in the future he thinks that BIM will be used to create animations to show how pieces and buildings are built and put together.

Bob Lee commented that it looks like BIM is good when designing a high-rise building, and asked if it had any value on something smaller, like custom homes. Russ Sanders answered that it is very effective for custom homes, and it can be used to speed up production because it can be used to draw from a finite list of elements that can be selected by the buyer.

Julie Belyeu asked if BIM can help designers make revisions to plans and resubmit to municipalities sooner. Russ Sanders said that the plans can be resubmitted faster than today, and that the municipality can put the two versions side-by-side to see the differences. He also said that he thinks it would be helpful to share the initial model at the pre-submittal meeting so that both sides have a common understanding of what the project is and what is included in the designs and why. Bob Lee added that he has had someone come to him with a 90% complete model and asked questions about the review and the requirements. He said that when the paper plans came in, he saved time by not having to familiarize himself with the project, having seen the model previously.

Jonathan Widney presented how BIM can be used for building plan review by municipalities. He compared the evolution of the design/build technology to the rapid evolution of cell phone technology. He said that designers and contractors are starting to use BIM, and his goal is to make sure the reviewers and inspectors at municipalities don't get left out.

Jonathan Widney said that Solibri is software that checks the quality of BIM models, and that it can check models against building codes to find places that the models don't meet code. He said that a group at the University of Texas called Fiatch is working on a project called Autocodes, which has a goal of finding a way to review building models faster without sacrificing quality. He said that the groups have been working with the International Code Committee (ICC) to get approval of the process at a national level. He gave examples of problems reviewing two-dimensional plans manually versus three-dimensional plans using the software.

Jonathan Widney continued that he hopes to deliver a set of plan-check rules for the software to the ICC by the end of the year, with the idea that municipalities and counties will be given copies of the software free of charge to be used to review BIM models. He said that it makes sense for Solibri to give the software to municipalities for free because the designer community will be the primary purchasers, but they won't be able to make the best use of the product unless the municipal reviewers are able to review the three-dimensional models as intended.

Jonathan Widney and JD Sherrill gave a live demonstration of how the Solibri software runs building code rule checks on a set of three-dimensional plans. The software was able to locate parts of the building model that didn't meet code and specified what the rule was that was violated. The software also identified all egress routes from the buildings to check that minimum distances to fire exits from all areas of a building met requirements.

Brett Harris noted that the building being used in the demonstration was a Target store, but that the floor of the store was empty of display shelves. He asked if the software can review exit routes with the shelves in place. Jonathan Widney said that it can be, and that it ends up forcing Target to design the interior of their stores better.

Bob Lee asked if the end result will be that the BIM model is submitted to the city and the plans are simply stamped approved. Jonathan Widney responded that the municipality can't count on the designer being able to meet all the code requirements on the first try, even though it's in

the designer's best interest to do that. He said that the reviewer has to ensure that the design meets the intent of the code, as well as meets the rule exactly.

Steve Hether asked if the software will be able to understand that, at a two-hour fire rated wall, all doors and ducts, etc., have to include similar two-hour rating. Jonathan Widney said that the software is able to understand parameters like that, but that the software is still not a substitute for human intelligence. Steve Hether commented that a meeting before submission will still be required in order for the designer and the reviewer to have a common understanding of things like occupancy, seismic zone, or required wind load. Russ Sanders said that there may need to be a change in process, to have an earlier pre-meeting with the municipality to discuss things like this.

Jonathan Widney demonstrated how the software is able to compare an earlier version of a model with the current model, highlighting all the modifications that have been made since the last review.

Tom Paradise asked if this type of modeling is compatible with the type of modeling that is required for smoke evacuation. Jonathan Widney responded that if it's simply analysis, it can be incorporated into the software.

Jonathan Widney said that his goal isn't to sell or shove software to the municipalities, but if they want access to it he can provide access. He said that eventually he sees the software being delivered as part of the code update process. Steve Hether commented that he believes the architecture and engineering industry should ultimately be carrying the cost of this because in the end they're able to get their plans through the approval process faster.

7. Updated MAG Building Codes Committee Membership

There were no updates.

8. Update on Survey of Code Adoption Document

Bob Lee said that Paradise Valley has started talking about moving straight to the 2012 codes, and skipping 2009.

9. Topics for Future Agendas

Ken Sowers asked if any members have ideas for future meeting topics, noting that the next meeting has someone interested in presenting already. Scott Wilken said that he is talking to someone about coming to the next meeting to give a presentation regarding state licensing requirements for assisted living homes.

Jackson Moll said that some homebuilders have run into issues with scheduling inspections in some jurisdictions, and that this mainly has to do with the budget and staffing issues recently faced by municipalities. He said that at some point the level of building activity is going to increase, and that, because of political realities, local governments tend to be reactive. He said that the problem could arise that the level of building activity increases before local governments increase their levels of building staff, and that he would like to have a discussion or brainstorming session at a future meeting to find ways to bridge that gap.

10. Adjournment

Steven Hether made a motion to adjourn and Tom Paradise seconded the motion. The meeting was adjourned at 3:26 PM.