IT HAS BEEN TWO YEARS SINCE THE IDEA OF BUILDING INFORMATION MODELING – MASONRY (BIM-M) WAS CONCEIVED, and what it means is still evolving. For many, BIM is 3D modeling taken to the extreme. For others, BIM is a process of designing, constructing and maintaining buildings that is all about information transfer and risk management. BIM-M is all of these applied to masonry buildings.

Year one (2012) of BIM-M meant planning and assessment. An outstanding Executive Committee of masonry industry leaders took bold steps into the digital arena. Each envisioned a better masonry industry and what BIM-M could do to make that happen. Georgia Institute of Technology was selected as lead consultant under the guidance of international experts Charles (Chuck) Eastman (charles.eastman@coa.gatech.edu) and Russell Gentry (russell.gentry@coa.gatech.edu) of the Digital Building Laboratory. Industry experts offered their advice and input. The result of all that planning was the development of a roadmap (http://bimformasonry.org/phase-i-roadmap).

BIM-M:
A Work in Progress

By David Biggs, P.E., S.E.

Graphics courtesy of Tradesmen’s Software Inc.
Year two (2013) brought great activity. Major fundraising was initiated with a challenging goal of $2.5 million. The list of sponsors has grown, the Canadian masonry industry joined the initiative, and the Charles F. Pankow Foundation became a strategic partner. The Masonry Society became the home for the BIM-M architectural and structural modeling working groups. The projects of the roadmap have taken shape. Project managers from the masonry industry were selected to work with BIM consultants and contracts signed. A website was started (www.BIMforMasonry.org), and plans were begun for 2014.

Where are we now? There are four active major projects from the roadmap and several smaller ones that help with promotion.

**Project 1 – Masonry Unit Model Definition**

As Project Manager, Jeff Elder of Interstate Brick (jeff.elder@interstatebrick.com) has surveyed many manufacturers and suppliers of concrete masonry, clay brick and cast stone for attributes of their materials and is now planning to do similar work with the stone industry. Consultant Georgia Tech will spend 2014 developing a digital data structure for masonry units that can be used by software developers. Third-party software vendors will be encouraged to develop the data structure and provide plug-ins to BIM software.

Future projects will expand into incorporating masonry accessories.

**Project 2 – BIM-M Benchmark**

I, David Biggs, as project manager, and consultant Georgia Tech began a round of meetings with leading BIM software developers. Three sample masonry buildings were selected: one loadbearing CMU, one veneer and metal studs, and one frame building with CMU back-up and veneer. These buildings will be modeled using existing BIM software to assess opportunities for further inclusion of masonry into existing BIM software. Georgia Tech will shadow a mason contractor through construction of an actual project to assess work processes with a goal of developing digital standards.

Additional meetings are being held with consultants and experts who offer masonry BIM services now. Their expertise will be invaluable in assessing the needs of contractors and designers.

**Project 3 - Masonry Wall Model Definition**

Jamie Davis of Ryan-Biggs Associates (jdavis@ryanbiggs.com) as project manager, and working group leaders Maria Viteri of the International Masonry Institute (miviteri@imiweb.org) and Tomas Amor of Target Corp. (tomas.amor@target.com), have been extremely active. They have defined various typical wall systems. Georgia Tech as consultant will be developing a digital data structure for use with commercial software. The working groups also are developing masonry-specific information on desired “Level of Development” (LOD). In BIM terminology, LOD determines what level of detail or information is required at each phase of a project.
Once these projects are completed, the architectural and structural groups will be moving on to additional tasks related to integration of software with BIM-M.

**Project 4 – Construction Activities**

DARRELL MCMILLIAN of the Masonry Institute of St. Louis (misldarrell@sbcglobal.net) as project manager has taken on the task of interacting with contractor groups. BIM-M has working groups for construction activities and construction management that are combined to define the needs of the masons in the construction process. The BIM-M effort will seek to translate those needs into the BIM-M process by integrating such topics as scheduling, estimating, site coordination, safety planning, equipment and tools, material delivery and more. Darrell and BIM-M can be seen at World of Concrete/World of Masonry, Construct 2014, and various contractor meetings in the United States and Canada gathering input. Working group members will be meeting digitally on conference calls and surveys. An industry consultant has not yet been selected to assist in the process. However, this activity may continue into 2016.

**Cloud-Based Equipment Management Software**

Construction software provider Dexter + Chaney has released an equipment management solution for contractors with features for preventive maintenance, equipment tracking, and a mobile app. The software works with the company's Spectrum Construction Software, which works completely in the cloud, requiring no software download or specific hardware devices.

Dexter + Chaney said it enlisted the expertise and best practices of Dr. Mike Vorster of Virginia Tech. The latest updates to Dexter + Chaney’s equipment management offerings also include an app that can be downloaded for use on Apple and Android mobile devices. The app allows field staff to enter equipment information from the jobsite and synchronizes automatically with Spectrum Equipment Management.

For more information, visit www.dexterchaney.com.
Another project within Project 4 is the Education program. Art Theusch of Collaborative Consulting Group (art.theusch@collaborativecg.com) is the lead consultant and I am project manager. Art is tasked with developing an educational program targeted at masons and contractors but will be useful to all. One module that should prove quite useful includes the use of smart phones, tablets and apps to assist the masonry industry with daily project tasks. The education program is slated for introduction in 2014.

Summary

There is much activity in the development of BIM-M. One thing we have learned is that there are many individuals and companies who have been involved for years, creating BIM-like solutions for masonry at the design and construction levels. Some have joined the BIM-M initiative and offered their expertise. We welcome their input!

The process of creating BIM-M version 1 is likely to go into 2017 or 2018. Until then, BIM-M efforts are channeled into digitally improving masonry design and construction at all levels. In 2015, there will be a symposium that assesses progress and realigns the remaining projects based upon the first three years of work. For further information, visit www.BIMforMasonry.org.

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