Reveling in the Joys of MUD

Imagine thousands of masonry colors, textures, finishes, shapes and sizes to design with – all contained in BIM-M’s Masonry Unit Database

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Just as we, as kids, loved the thrill of muddy puddles, designers find that same feeling of exhilaration when choosing first the colors, blends, textures, unit size, bond as well as the finish and special shapes or articulation of the aesthetic masonry wall. So much more than simply indicating the solid veneer just to be masonry. FUN. MUD is the software tool that allows your choices to be depicted for the walls.

Building Information Modeling for Masonry’s newest tool launches. The Masonry Unit Database allows architects to design using this simple tool. It is easy to make selections and visualize the completed wall. Then, effortlessly, make it entirely different. Add a brick blend or a second color. Or not. Then show this digital rendering to clients for approval. What a great opportunity to “build it (to see it) before you build it”.

BIM-M’s Newest Tool Launches

The Building Information Modeling for Masonry initiative, BIM-M, formed in 2012 is to promote the efficient use of masonry in the design and construction industry. Digital tools for the next generation of masonry systems will enable design development and construction workflows to spread the adoption of BIM-enabled software in the masonry industry.

BIM is expanding quickly within the construction industry worldwide. Development of BIM tools for masonry to support the use of brick, CMU and stone as construction materials is underway to facilitate masonry’s
use more accurately in BIM models. As it becomes easier and more fun to design masonry, we can expect to see greater variety in this aesthetic and greater efficiency in both its design and construction workflows.

As identified in the BIM-M best practices guide¹, current BIM models consider the masonry portions of the building as a solid block of material with defined thickness, but containing no information on unit geometry. To improve these models, BIM-M is developing objects that provide digital representations of the masonry units and walls within the overall building model, so that common modeling and analysis tools used by architects, engineers, constructors, managers and owners can read and write masonry information along with information on other building systems.

Data Access
BIM-M is working to create platforms where masonry unit models can be housed in electronic repositories in a form that facilitates communication between design and construction disciplines without a loss of

¹ bimformasonry.org/pdf/bim-for-masonry-modeling-buildings-in-autodesk-revit.pdf

MASONRY UNIT DATABASE VERSION 2 INCLUDES CUSTOM UNITS

Under the coordinated efforts of the BIM-M

BIM-M is developing objects that provide digital representations of the masonry units and walls.

Figure 1 - Version 1 MUD Portal mudb.org

Figure 2 – MUD Implementation: Inputs, User Access and Masonry Unit Storage

in many ways such as steel shelves and suspensions

COMING SOON!
The BIM-M initiative is led by an Executive Committee whose members are sponsors:
- International Masonry Institute (IMI)
- International Union of Bricklayers & Allied Craftworkers (IUBAC)
- Mason Contractors Association of America (MCAA)
- National Concrete Masonry Association (NCMA)
- The Masonry Society (TMS)
- Western States Clay Products Association (WSCPA)
- Brick Industry Association (BIA)

Guided by Georgia Institute of Technology Digital Building Laboratory as BIM-M Consultant

BIM-M Coordinator: David Biggs
BIM-M Consultant: Russell Gentry, Georgia Tech
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Figure 3
8” Concrete Masonry Units in MUD

Initiative, Cad Technology Center (CTC), with technical support from the Georgia Institute of Technology, has developed the database and a website to house the Masonry Unit Database and facilitate the ease of searching MUD by non-database experts. Overall MUD structure is shown in Figure 2.

Primary components of MUD vt include:
- Relational database schema, adapted from Georgia Tech and implemented by CTC, stores masonry unit information
- Masonry unit input web pages act as a back-end for entering masonry units into MUD
- User-facing web pages act as access to MUD, including browsing of masonry units and the downloading of BIM and CAD files
- Revit application generates masonry units from parameters stored in MUD allowing for direct import of masonry units into Revit as families
- Set of commonly-used masonry units from the concrete masonry, structural clay masonry and veneer clay masonry families, populate the database Figure 3.

The MUD user portal provides a single website and access to the database that contains models of the most commonly used generic shapes, colors and sizes for concrete and clay masonry units. The models contain both geometric and material property data and can be exported from the database to all commonly-used BIM and CAD applications.

Version 1 of the database is available free through the web portal mudb.org

MUD: Digital Tool for More Expressive Masonry

The MUD is organized to allow users to browse through an extensive range of masonry materials Figure 4. In Version 1, the database has been populated with commonly used units in the concrete, structural clay and veneer clay industry segments. In version 2, the vision is that MUD will contain geometry files for all masonry materials including custom masonry, tile, hardscape and even masonry accessories. Expansion of the
Future Development of MUD

A geometric interface that can create three-dimensional (3D) representations of the masonry unit objects has been developed and a plug-in for direct access to the database through Autodesk Revit is provided. MUD Version 2, currently in development, will provide a means of generating and importing complex masonry shapes that database is dependent on the support of the manufacturers from these industry groups.

BIM-M’s expectation is that once data for the models is available, third party vendors will be motivated to create design software enhancing the use, optimization, ordering, scheduling and installation of masonry units. BIM-M’s objective is to also decrease contractor costs associated with generating shop drawings, construction scheduling, cost awareness, safety and improved communications between contractors, designers and owners.

This effort will facilitate the expansion of the masonry industry through data sharing, increased safety, productivity, scheduling and life cycle awareness.

Figure 4 - Organization of Masonry Units in MUD

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the database. The greatest challenge of this phase will be in identifying a third party capable and willing to manage and keep the database live and up-to-date. This phase is intended to be self-funded through contributions by participating manufacturers. Phase 3 is expected to begin in 2018.

Manufactured stone and granite cut stone will also be incorporated in this phase.

Finally, MUD Version 3 is the coordination of specific manufacturers’ units and data into the database. The greatest challenge of this phase will be in identifying a third party capable and willing to manage and keep the database live and up-to-date. This phase is intended to be self-funded through contributions by participating manufacturers. Phase 3 is expected to begin in 2018.

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