

A Dozen Ways MBMA is Transforming the Concept of Metal Buildings



By Jeff Carmean

The Metal Building Manufacturing Association (MBMA) is the industry leader when it comes to research and engineering for metal building systems.

Even during a tough economic cycle, MBMA invested in a dozen significant milestone actions to improve performance, open new markets and answer questions in the building code arena. These game changers will grow the industry.

● **Seismic Research Makes Breakthrough Discoveries**

Through a multiyear research initiative, MBMA is examining how to expand the competitiveness of metal building systems in high seismic areas. This November, MBMA's Technical team, headed up by Dr. W. Lee Shoemaker, will meet with a dozen seismic design experts from all over the country to review the completed research, exchange ideas and develop approaches for the next phase of research.



● **Improved Performance of Overhead Vehicular Doors**

Overhead vehicular doors can be a building envelope's weakest link in hurricane conditions. Through wind load resistance testing, MBMA is amassing a greater understanding of the loads imparted by doors on metal jambs, and will soon develop a jamb design procedure to improve design criteria and allow the doors to remain economical.

● **Tapered Member Shear Strength Testing Leads to More Efficient Design**

Recent MBMA sponsored tests of tapered members show that shear buckling strength is up to 40 percent greater than predicted by American Institute of Steel Construction (AISC). MBMA is teaming with AISC to expand this research to make metal building systems more competitive.

● **Flange Brace Research Results to New Tool—Coming Soon!**

When the AISC combined its Allowable Stress Design and Load and Resistance Factor Design criteria, this resulted in new flange brace design requirements. As a result, MBMA examined how to more accurately predict flange brace strength and stiffness requirements for metal buildings. MBMA contracted with researchers at Georgia Tech to develop a tool, available by the end of

2013, to be used by metal building manufacturers to improve frame optimization.

● **Industry Standard Manual Combines Current Knowledge**

MBMA's Metal Building Systems Design Manual was updated to bring its contents in line with the IBC 2012, ASCE 7-10 and other relevant standards. This update was a substantial undertaking due to the number of changes within the ASCE 7-10 (in particular the wind load and seismic provisions).

● **Industry Credibility Enhanced through Accreditation**

The MBMA Accreditation Committee worked with The International Accreditation Service (IAS), a subsidiary of the International Code Council (ICC), to implement a quality management system covering all phases of metal building engineering and fabrication. This accreditation established performance criteria that meets the requirements of Chapter 17 of the IBC, accepted by most building officials.

● **Energy Design Guide Focuses Solely on Metal Building Systems**

The MBMA Energy Design Guide for Metal Building Systems has the tools to incorporate daylighting, cool roofs and photovoltaic panels into metal buildings; to understand energy codes, standards and compliance tools; and to analyze certification programs.



● **MBMA/ORNL Flexible Platform Research Program**

The intent of the flexible platform research is to improve the energy efficiency of metal buildings by identifying and validating cost-effective materials and construction techniques, and learning how those systems interact in real buildings. New research will help demonstrate ways to retrofit facilities to reduce operating costs. MBMA is excited about developing such real-world solutions that will significantly impact the industry.

● **Fire Rated Wall Assembly Listings Adopted**

MBMA performed research that led to new exterior fire wall listings. The one-hour listing relates to rated non-load bearing assemblies and provides

much needed allowances in additional thermal insulation. The two-hour, fire-rated wall assembly provides for factory, mercantile and storage areas with 5 feet or less of separation, and for buildings classified as Type H Hazard Occupancies.

● **Unique Content Available in Fire Resistance Design Guide**

Metal buildings typically require fire resistance designs to satisfy fire codes. MBMA's Fire Resistance Design Guide for Metal Building Systems addresses all fire protection issues related to metal building systems. Details are at www.mbma.com/bookstore.




● **Life Cycle Assessment Program to Unveil Groundbreaking Energy Tool**

MBMA has been conducting research to establish and verify metal building environmental impact. Life Cycle Assessment research established industry-average environmental impacts that will be uploaded into the NREL US LCI Database. This data will be introduced into the Athena Impact Estimator to assist in defining environmental impacts, energy efficiency and improvement opportunities.

● **Progressive Three-Year Research Strategy Underway**

Metal buildings continue to evolve and MBMA's responsibility is to get way out ahead of today's paradigms and plant the right seeds to impact the way metal building systems will be used in the future. We're all about increasing the pie; and that's what we'll address as we develop a three-year strategic plan.

Metal building systems are far more sophisticated than they were a decade ago. Due to MBMA's research leadership, further evolution is not far down the road. Even during the recession, MBMA invested heavily in engineering technology, fabrication concepts, structural improvements and building quality. As a result, buildings today are far better in terms of cost, strength, function and aesthetics. Through the innovations outlined above, we are moving the industry to a higher level. 

Jeff Carmean is chairman of the Metal Building Manufacturers Association based in Cleveland. You can learn more about all of MBMA's educational materials and programs at www.mbma.com