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ENGINEERING LEADERSHIP

MBMA Efforts Lead to Improved Performance, Efficiency and Quality of Metal Building Systems



Grace Clinic, Lubbock, Texas

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MBMA MISSION

It is the mission of the Metal Building Manufacturers Association (MBMA) to advance the collective interests of the metal building systems industry.

ABOUT MBMA

MBMA has served metal building systems manufacturers and suppliers for 56 years. Its membership represents more than \$ 2 billion in annual steel shipments and accounts for approximately 49% of the total non-residential low-rise construction market in the United States. MBMA provides engineering leadership through the many research programs that it sponsors annually, often in coordination with major universities and engineering schools throughout North America. This research is used to improve the performance, efficiency and quality of metal building systems, to elevate the technology used to produce them and to promote the expanded use and collective interest of the metal building system industry.



RESEARCH, TECHNICAL EXPERTISE LEAD TO BETTER TIMES

Fred Koetting, 2012 MBMA Chairman

CHAIRMAN'S INTRODUCTION

The metal building industry has weathered the recent recession and come out stronger, thanks in part to the efforts of the Metal Building Manufacturers Association. The research and technical work that the association does, in hand with a commitment to education and communication, has helped the industry grow even when times were tough.

Data collected under the guidance of MBMA's Statistics Committee shows that through the first three quarters of 2012, domestic building shipments were the best in four years. MBMA members reported that:

- Shipment revenues were 7.41% percent higher than in 2011;
- Tons of steel shipped were up 5.75 % during the same period.

Metal buildings continue to gain market share as owners and specifiers see the cost effectiveness, energy efficiency, and sustainable benefits of metal building systems.

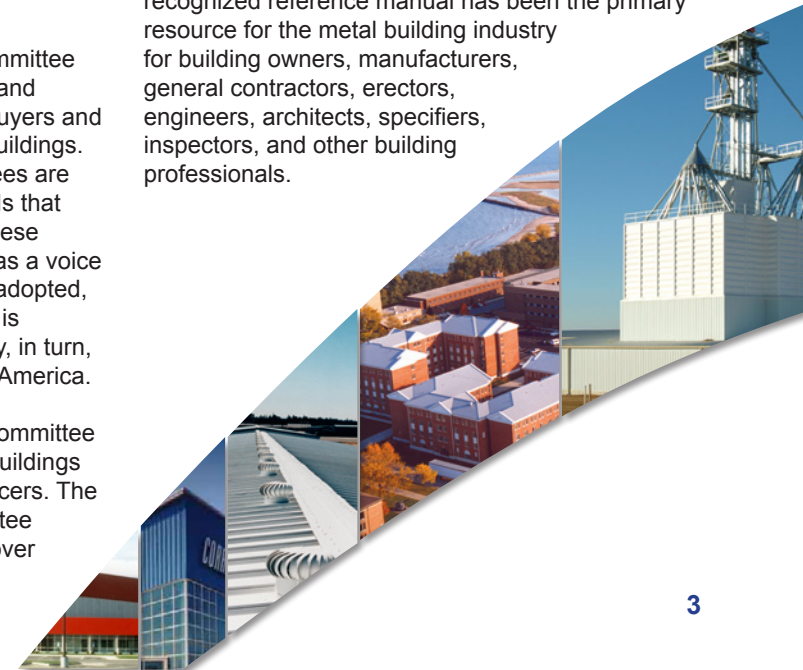
Driving these trends is the excellent work accomplished by MBMA members and committee volunteers. For example, MBMA's Energy and Sustainability Committees are educating buyers and specifiers about the green traits of metal buildings. Just as importantly, both of these committees are addressing the myriad codes and standards that address green or sustainable buildings. These committees are making sure that MBMA has a voice in the writing of standards, and that, once adopted, the information contained in the standards is disseminated to the MBMA members. They, in turn, share this knowledge with builders across America.

The Fire and Related Insurance Matters Committee is also working hard to ensure that metal buildings are treated fairly by code writers and enforcers. The technical staff and members of the committee have tested several new wall assemblies over

the past several years and have successfully come away with new UL one- and two-hour fire ratings. These rated assemblies enable metal building system manufacturers to penetrate additional markets where such ratings are required, helping to further advance the growth of the industry.

The Technical Committee has undertaken a range of research projects in recent years that help engineers, designers, and buyers better understand how metal buildings and components perform. One example of MBMA's leadership is in the study of the behavior of metal buildings under earthquake loading. This effort has been underway for several years and will lead to the code adoption of appropriate design methodology that will make metal buildings more economic in high seismic areas.

And finally, the *2012 Metal Building Systems Manual* was released toward the end of 2012. Since the first edition was published in 1959, this nationally recognized reference manual has been the primary resource for the metal building industry for building owners, manufacturers, general contractors, erectors, engineers, architects, specifiers, inspectors, and other building professionals.



MBMA CONTINUES EXPANDING ITS LEADERSHIP ROLE

Charles Stockinger, MBMA General Manager

The Metal Building Manufacturers Association is proud to be a driving force in the growth and acceptance of metal building systems in the low-rise, non-residential construction market—a position it has retained since MBMA was founded in 1956. Consistent, sophisticated technical capability and relevant research, combined with unique educational resources, have positioned the organization and its members as industry change-makers—a role it will continue to play into the ever-evolving future.

GENERAL MANAGER'S PERSPECTIVE

MBMA's strength is exemplified through a range of actions and undertakings which are laid out each year in our strategic plan. Our many technical research programs are performed in partnership with major research universities and national laboratories such as the Oak Ridge National Laboratory (ORNL). These lead to improvements in the performance of metal building systems.

The 2012 MBMA Annual Meeting took place at the Dallas/Fort Worth International Airport at the end of the year with almost 100 attendees from 17 Metal Building Systems Member companies and 33 Associate Member companies. The attendees heard presentations from all of the MBMA technical committee chairs. This annual report highlights many of the significant accomplishments described in their individual reports and provides forward-thinking detail about what their committees intend to achieve in 2013 and beyond.

We extend our thanks to the committee chairs and the committee members for all of the time and work they invest to make this organization what it is today. In particular, we would like to extend our thanks to several outgoing committee chairs for their hard work and dedication. They are: Fred Koetting, MBMA's 2012 Chairman, and Dave Evers, who served as Chairman of the Energy Committee for a number of years.

Hundreds of meetings and thousands of hours go into every technical accomplishment we achieve. We certainly couldn't do it without the expertise and input of brilliant individuals in our member companies as they share their knowledge and skill for the betterment of the industry.

We would also like to take this opportunity to acknowledge the excellent work that MBMA's professional staff successfully undertook throughout the year. The MBMA leadership, supported by the Thomas Associates' team, continues to drive the association forward through their hard work, technical expertise, and commitment to excellence.



MBMA STAFF

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MBMA is managed by Thomas Associates Inc, one of the oldest and largest association management firms in the United States. It has an extensive and diverse technical team that can support the code, standards, and research goals of its various associations. Such synergy allows it to expand research capabilities and bring in human resources that enhance the technical strength of MBMA.



COMMITTEE ACHIEVEMENTS

ENERGY COMMITTEE

Energy Committee Mission

To promote the use of metal building systems in the non-residential construction industry, by encouraging fair and equitable treatment of metal building systems by energy codes, standards organizations, testing and rating groups, and other governmental and non-governmental groups.

The Energy Committee is focused on three specific areas:

- Energy Codes and Standards
- Education and Training
- Research and Innovation

Energy Codes and Standards

The MBMA Energy Committee is working to bring a semblance of order to the changing and broad range of codes and standards for members and those who work with metal buildings. MBMA is serving on committees and monitoring the activities of ASHRAE, ASTM E60, California Title 24, and IECC. Under the Sustainability Committee, MBMA is monitoring high performance standards and codes such as ASHRAE 189.1 and the IgCC.

While the 2012 International Energy Conservation Code, or IECC, is now in place, other codes and standards are being continually rewritten and updated. This past year, most of the committee's activity has focused on revisions to the ASHRAE standard. ASHRAE 90.1-2010 has been published and initial changes for the 2013 version are now being considered. Addenda have been proposed that can impact the requirements and prescriptive assemblies for metal buildings. In addition to the ASHRAE updates, MBMA participated in the revisions to the 2013 California Title 24 Code by reviewing and commenting on several items. We expect more changes in daylighting requirements, lighting controls, fenestration, and cool roofs for California and less attention to building envelope insulation requirements.



Dave Evers,
Committee Chairman

MBMA is also involved with other organizations that help it to have a say in the process of code changes and updates. MBMA continues to be part of the Cool Metal Roofing Coalition that represents metal roofing at various codes and standards meetings, such as California Energy Code, Cool Roof Rating Council, and Energy Star®.

In 2012, MBMA continued its participation in the National Association of State Energy Officials (NASEO) as an affiliate member. This group is funded by the DOE and the states. It holds a variety of regular conference calls, webinars, and meetings throughout the year aimed at the education of state code officials and it promotes the adoption and enforcement of the IECC. We continue to participate in related conference calls. These offer us the opportunity to not only stay in touch with the state level code activities but also give MBMA an opportunity for training and education of state officials regarding metal building systems and their energy code compliance options.

Another factor that affects everyone in the construction industry is the wide variety of acceptance of new codes and standards. A quick look at where states are in adopting the most recent standards shows a range of implementation, with some states and territories already implementing the 2012 IEC and ASHRAE 90.1 – 2010. Going forward, the Energy Committee will keep MBMA's voice strong in both the development and implementation of these standards.

Education and Training

The *Energy Design Guide for Metal Building Systems* was released in 2010 and is available through the MBMA online bookstore (www.mbma.com/bookstore). It is an important resource for anyone who works with metal building systems; but with the release of new codes since its publication, it requires review and



updating. The committee will lead the effort for this task in the coming year.

The Energy Code Compliance for Metal Building Systems Webinar program has been in place since 2011. In 2012, there were 10 well-attended webinars offered throughout the year. The Energy Committee will continue to run these webinars in 2013, updating and revising them to offer continuous improvements.

A seminar entitled Energy Code Compliance Toolkit for Metal Building Systems was held on January 16-17, 2012. This program offered an introduction to various code compliance paths with emphasis on using ComCheck



software, a free program provided by DOE that can be used in 45 states for energy code compliance. This seminar was designed to also “train the trainer” to enable member companies to begin providing training to their builders and contractors. Comprehensive materials were provided to participants for their use as trainers. Energy code training was subsequently initiated throughout MBMA Building System Member companies.

Energy Committee Research and Innovation

There are two specific research projects on which the committee is focused:

1. The Flexible Research Platform being developed at the Oak Ridge National Laboratory (ORNL) and Assembly Air Infiltration Testing. ORNL’s Flexible Research Platform is a multi-year project started in 2011 that uses a 40 ft. x 60 ft. metal building as the flexible platform. The building was recently completed, and a test plan has been formulated.

The project goal is to evaluate the actual performance of the building and establish cost-effective building designs that have a significant impact on the total energy consumption. Testing will begin in 2013.

2. The Air Infiltration Task Group was established to evaluate the air-infiltration performance of metal buildings and explore ways to make improvements. Continuing its successful work from 2011, the task group tested several discontinuities in metal buildings, including corners, eaves, ridges, and gable ends. The base tests were constructed of details typically used in these elements, and alternate designs were tested to evaluate the impact of modifying certain details. The tests indicate that there are reasonable and cost-effective opportunities to improve the performance of these details. We are analyzing the results and will provide a written report in 2013.



SUSTAINABILITY COMMITTEE



Brad Robeson,
Committee Chairman

Sustainability Committee Mission:

The MBMA Sustainability Committee was formed in 2009 to represent the metal building industry in the many facets of green and sustainable construction and to ensure fair and equitable treatment for metal buildings by the many groups which publish standards relating to green construction.

2012 Overview

The MBMA Sustainability Committee has focused on very specific undertakings through its two task groups in 2012, while being guided by its broader mission and objectives. The overarching goals include:

- Positioning metal buildings as a premier green construction alternative;
- Educating the MBMA membership in sustainability;
- Leveraging the metal building industry through AISI's sustainability efforts; and
- Working with other industry groups.

The High Performance Green Building Task Group concentrated its efforts on influencing and interpreting new sustainable codes, while the Life Cycle Inventory/Life Cycle Assessment (LCI/LCA) Task Group has been collecting and reviewing the data used in Athena life cycle assessment tools.

High Performance Green Building Task Group

The High Performance Green Building Task Group oversees and seeks to influence the development of green and sustainable codes and standards. Over the course of the year, this group commented on LEED v4, the International Green Construction Code (IgCC), ASTM Standard Practices, and ASHRAE 189.1.

There were a number of important developments in these codes that could affect metal buildings in the future. As it now stands, LEED v4, which is due out in June, 2013 would permit initial values of SRI (Solar Reflectance Index) in addition to 3 year aged values. Since steel far out-performs other roofing materials as they age, this could potentially penalize buildings that use metal roofs. The task force also addressed inequities for steel in several areas and commented on improving clarity in LCA results and Environmental Product Declarations (EPDs). Eventually, the goal is to see industry-wide EPDs for metal buildings.

For the IgCC, the task force collected comments from committee members as well as both the AISI and the CMRC and is now

coordinating comments with the AISI. The ICC delayed the new version by a year and the commenting process will continue in 2013, with code change proposals due in January, 2014. ASHRAE 189.1 will update in 2014 and new proposals are expected. The task group is working with the entire committee to develop commentary for the whole building LCA standard in the ASTM Standard Practices.

In 2013, the task group will disseminate information about LEED v4 when it is released and continue to gather and review comments and information for the upcoming versions of IgCC, ASHRAE 189.1 and the ASTM Standard Practices.

Life Cycle Inventory/Life Cycle Assessment Task Group

The Life Cycle Inventory/Life Cycle Assessment (LCI/LCA) Task Group has a primary objective of driving LCA data for metal building assemblies into the appropriate tools to support member companies in meeting the requirements of green building codes and standards.

Two major LCA tools, Athena's EcoCalculator and Impact Estimator, have been developed by the Athena Sustainable Materials Institute and its software partner, Morrison Hershfield. Both are now available for free download, making LCA use easier and more widespread. A number of building codes and standards now have LCA options, including LEED 4.0, ASHRAE 189.1, and the IgCC. Ensuring that the data for metal buildings is accurate and up-to-date is a very important function of this group.

In the first half of the year, the LCI/LCA Task Group accumulated and reviewed the LCI plant data for metal building manufacturers that was submitted to Athena. Later in the year, the group reviewed and commented on the draft report, assisted Athena in addressing peer reviewed comments and, in November, accepted the final report.

In the coming year, the task group will work with Athena and Morrison Hershfield to develop a benchmark tool and the Metal Building Solution for Impact Estimator. It will have an algorithm that will accept loading and geometry data and convert the impacts from a per-ton basis to a per-square-foot-of-assembly basis. This tool is pivotal to completing the inclusion of metal building systems into the Impact Estimator and ecoCalculator. The committee will conduct special member educational programs once the program tools are finalized.

COMMITTEE ON FIRE PROTECTION & RELATED INSURANCE MATTERS



Bob Hodges,
Committee Chairman

Committee on Fire Protection & Related Insurance Matters' Mission:

To promote the use of metal building systems in the non-residential construction industry by encouraging fair and equitable treatment of metal building systems by regulators, fire and building codes, insurance and insurance regulating and rating organizations, underwriters, and re-insurance firms.

2012 Overview

The Fire Protection & Related Insurance Matters Committee once again had a busy year as it continues to address fire prevention and insurance issues while educating MBMA members and the public-at-large about these areas. The committee oversaw the fire protection webinar programs, the MBMA Insurance Study, and completion of a new 2-hour, fire-resistive wall assembly.

Fire Protection Webinars

Fire Protection webinars were introduced in 2011 and they continued in 2012. The committee will carry forward the webinars into 2013, while revising them with appropriate updates and improvements. Paid attendance in the webinar entitles the buyer to a copy of the *Fire Resistance Design Guide for Metal Building Systems*, a valuable resource for anyone involved with metal buildings. In addition to the two public webinars, a presentation was made to a member firm's builder group.

MBMA Insurance Study

The MBMA Insurance Study is a multi-year, multi-step project that is nearing completion. The committee is also updating the MBMA Insurance Fact Book and Insurance Bulletins. Once these have been revised, then they will be promoted through educational programs and news items.

1- and 2-hour Fire-Rated Wall Assemblies

The 1-hour fire-rated wall assembly was completed in 2011 with the release of UL Listing W404. The information on this assembly was detailed in Fire Resistance Bulletin #5 and is available for free download at www.mbma.com. In 2012, the committee focused its efforts on a 2-hour fire-rated wall assembly. This assembly was tested at Underwriters Laboratories in June, 2012 and was a success, resulting in a new listing, UL W413.

Both the 1- and 2-hour fire-rated assemblies are metal building friendly and have the following features:

- Can be installed after metal building erection
- Can be used for retro-fit
- Ratings achieved from both sides of the wall
- Uses conventional drywall assembly
- Energy compliant with plenty of insulation in the walls

The 2-hour fire-rated wall assembly has some additional features and allows market penetration where 2-hour fire ratings are required for factory, mercantile, and storage areas with 5 feet or less of separation. It also provides potential for market penetration for buildings that are classified as Type H Hazard Occupancies.

In 2013, the committee is focused on moving forward with all of these projects. In addition to continuing the fire protection webinars and finishing the Insurance Study, additional work is planned for the 2-hour fire assembly. The details of UL W413 will be spelled out in a new Fire Resistance Bulletin and this information will be brought to members and the public via the MBMA website, trade magazines, shows, and training. The committee also plans additional work on 2-hour assemblies with some variations on the initial design.

SAFETY COMMITTEE



Stanley Reid,
Committee Chairman

Safety Committee Mission:

MBMA's Safety Committee was put in place to provide a mechanism to share ideas and principles in safety which relate to the metal building industry, build collaborative relationships between MBMA Member companies and Associate Members, and establish the metal building industry as a leader in safety.

By focusing on safety and best practices, member companies will see specific, tangible results including:

- Reductions in company operating costs due to a safer working environment;
- Fewer lost work days and restricted duty assignments;
- Less exposure in OSHA audits; and
- Reduced insurance premiums at renewal.

Additionally, companies with good safety practices will see improvements in employee morale and ultimately increased profits.

MBMA's Safety Principles

- All injuries and work-related illness can be prevented.
- Leadership is responsible for clear safety objectives. All employees are responsible and accountable for working safely.
- Employee engagement and training is essential.
- Working safely is a condition of employment.
- Excellence in safety and health drives excellent business results.
- Safety and health is integrated into all business management processes.

2012 Safety Committee Overview

The MBMA Safety Committee held its annual meeting in Salt Lake City, Utah in August. This event was well attended and included a series of roundtable discussions on best practices in safety, practical presentations on a variety of safety subjects, and testimonials from people who have been affected by safety-related incidents. Specific presentations included:

- Incident Reporting
- OSHA's Voluntary Protection Program
- Safety Resource Sites
- Welding PPE
- Electrical Arc Flash
- Summer Safety initiatives for new hires
- The New Global Harmonization System, or GHS, Hazard Communication Program

In addition to its annual meeting, the Safety Committee developed a Safety Leadership team to share committee initiatives and to provide future committee leadership. It also increased utilization of the MBMA Safety website by MBMA member companies and put in place a series of free safety webinars for member firms.

Lunch and Learn Webinars

In 2012, the committee also established a series of Lunch and Learn Safety webinars. Three webinars were conducted in the fall of 2012 on Fall Protection, Safety Leadership, and Vehicle Safety. A large number of MBMA members and others participated in each of these webinars. The committee plans to continue these valuable, free learning sessions with additional topics planned for 2013.

MBMA Safety Awards

Safety performance awards were presented in May of 2012 at MBMA's Spring Meeting. Forty-six manufacturing facilities submitted data for the safety awards. A total of 53 safety awards were presented with some facilities winning multiple awards. Seventeen individual plants won Superior Overall Safety Record awards, 33 plants won Improved Safety awards for lowering injury frequency rates by at least 20%, and three plant locations received Safety awards for No Recordable Cases in 2011.

2013 Initiatives

The annual Safety Committee Meeting will take place in Atlanta, GA in May of 2013.

The committee is encouraging each MBMA member company to send designated safety representatives, front line management, and plant safety personnel.

- The committee's leadership is developing an agenda which is compact, allows for team building and interaction, and will be cost-effective so companies will see value in sending multiple representatives.
- If representatives cannot attend, we are encouraging participation via GoToMeetings, web casts, and conference calls.
- In addition to Metal Building System Members, we are working with Associate Members to send safety representatives to the annual meeting so that we can continue to get different views and ideas on safety related issues.

The committee is also focused on several specific tools and areas for safety. The Global Harmonization System, or GHS, was introduced at the 2012 Safety Meeting and will transition in over the next three years. The first deadline is December 1, 2013 and the remaining steps need to be complete by June, 2016. Additionally, welding shop air quality will continue to be examined and we will be looking into options for safety improvement where needed.

Active participation and utilization of the MBMA Safety website is another focus. We encourage member companies to submit safety information for the MBMA website that can be shared by all MBMA member firms.



TECHNICAL COMMITTEE

The MBMA Technical Committee serves a vital role within MBMA and also serves the industry as a whole. It keeps MBMA and its members at the forefront of technological challenges within the industry. The committee continues to engage in research projects in coordination with national research universities and oversees the publication of MBMA manuals and guides.

In 2012, the committee oversaw the release of two updated technical guides: the second edition of *The Metal Roofing Systems Design Manual* and the *2012 Metal Building Systems Manual*. In addition to these manuals and the projects detailed below, the committee also worked to improve and update several codes, including the wind load provisions in ASCE 7.



Gerald Hatch, P.E.,
Committee Chairman

2013 RESEARCH PROJECTS

Seismic Behavior of Metal Buildings

The goal of this project is to update the building codes with more appropriate seismic-design methods for tapered-member rigid frames. This will make metal buildings more adaptable in high seismic areas as well as ensure the continued excellent performance associated with earthquake loads. Dr. Chia-Ming Uang has led this effort that has included full scale shake table testing and cyclic testing of rafter/column component assemblies. He is now developing the appropriate seismic performance design factors based on a FEMA method required by the new seismic codes. The work will be wrapped up in 2013 and MBMA will continue to work to have the results of this study incorporated into the latest building codes and standards.

Snow Loads on Roofs with Solar Panels

There has been very little research performed on the effect that solar panels have on roof snow loads. Our objective is to develop an ASCE 7-consistent guideline for snow loads atop solar-paneled roofs. The research will investigate:

- The influence of solar collectors on roof exposure;
- Thermal and slope factors; and
- Drainage and eave ice dam considerations.

This research is being carried out by Dr. Michael O'Rourke of Rensselaer Polytechnic Institute (RPI).

Wind Loads on Overhead Doors

Work on improving the high wind performance of overhead doors has been under way for several years in coordination with DASMA, the Door and Access Systems Manufacturers Association. The objective is to establish recognized design limits and procedures for metal building jambs supporting roll-up sheet doors (drum doors). Researchers at Virginia Tech have developed a model to predict door





deflection given wind pressure, initial wind lock gap, and jamb flexibility. In 2013, the committee expects to finalize a general procedure that will allow each manufacturer to address jambs in an economical way.

Limit State Design of Through-Fastened Purlins/Girts

The project goal is to validate and implement an analysis-based prediction method for through-fastened cold-formed steel girts and purlins as an alternative to the current R-factor approach in AISI-S100-07 Section D6.1. Existing strength-prediction methods are simple but constrained to empirical bounds. As new energy-efficiency rules come on line and new building materials are developed, the empirical methods may no longer be valid. Providing a direct strength method, a member-based supplement to the current prescriptive methods will give designers a less restrictive methodology. Dr. Cris Moen at Virginia Tech is the lead investigator for this project.

Shear Strength of Tapered Members

The method that is commonly used to determine shear strength of tapered members has been around for decades, based on Omer Blodgett's book on the design

of welds. The committee's recent work, carried out by Dr. Brad Davis at the University of Kentucky, is focused on testing 12 specimens of varying geometry to obtain objective test evidence to corroborate the approach. Testing that was completed in 2011 confirmed that the modified shear approach is conservative and requires an updated approach. Work will continue in 2013 to extend the concept to prismatic as well as tapered members.

Flange Brace Research

The objective of this research is to determine flange-brace strength and stiffness requirements that preclude stability buckling of tapered member frames. Researchers at Georgia Tech have been studying flange-brace strength and stiffness requirements for several years and have demonstrated that the strength and stiffness requirements for flange braces used in metal building systems are different than those developed for conventional steel construction. Dr. Donald White is now developing a flange-brace tool that will allow metal building manufacturers to generate rules for the strength and stiffness requirements of flange braces, and ultimately be able to interface with production design programs.

Base Plate Wizard

Recent lateral drift measurement of a metal building and seismic behavior testing have shown that frame base stiffness has a larger-than-anticipated impact on design. Dr. Finley Charney at Virginia Tech has developed a prototype base plate wizard that can be used to determine the stiffness of frame base plates in metal building systems. This input can then be used in the analysis and design of rigid frames to achieve a more accurate assessment of the lateral drift. A final version of the base plate wizard is expected in 2013.

Resources

The committee is reviewing and revising several publications in 2013 in coordination with other MBMA committees. Supplements are planned for the Energy Design Guide, Fire Resistance Design Guide, and the Seismic Design Guide. A new compilation is planned for the ASTM Standards. The committee is also working on an Inspection Handbook and is advising an independent expert who is authoring a Foundation Design Manual.



ACCREDITATION COMMITTEE

MBMA's Accreditation Committee, chaired by Chuck Haslebacher, serves as the expert accreditation advocate for the industry and works with IAS to achieve solutions that meet the needs of IAS and the metal building systems industry. In 2012, the committee established an MBMA Technical Advisory Council that will meet with IAS and accredited inspection agencies to review the AC472 program and recommend improvements. The council conducted a survey of all board members to receive comments, questions, issues, and ideas related to the AC472 program. Several new programs and changes are being considered by the council and IAS, including an international metal building accreditation program and the proposed AC473 Component Accreditation Program.



Chuck Haslebacher,
Committee Chairman

All MBMA Building System Member companies are accredited in accordance with the International Accreditation Service (IAS) AC 472, the IAS Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems. AC472 is the most comprehensive quality-assurance accreditation program of its kind and is designed specifically for manufacturers of metal building systems.



AC472 addresses quality management system elements such as:

- Personnel requirements;
- Product traceability;
- Process control; and
- Various administrative and technical requirements that are essential for code officials to deem IAS-accredited entities as approved fabricators.

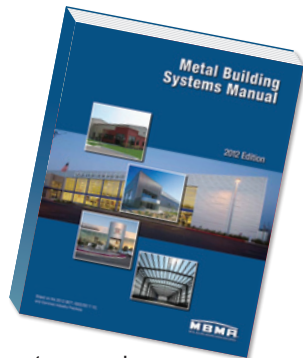
This comprehensive accreditation program for the inspection of metal building facilities is based on the requirements of Chapter 17 of the International Building Code® and provides code officials with a means to approve the inspection programs of manufacturers involved in the fabrication of metal building systems.



EDUCATIONAL AND TECHNICAL RESOURCES

2012 Metal Building Systems Manual

MBMA released the *2012 Metal Building Systems Manual* in November of 2012. Since the manual's first publication in 1959, this nationally recognized reference manual has been the primary resource for the metal building industry. It is used by building owners, manufacturers, general contractors, erectors, engineers, architects, specifiers, inspectors, and other building professionals.



The *2012 Metal Building Systems Manual* provides a practical and comprehensive resource that helps engineers, building officials, and plan checkers meet the metal building requirements of the 2012 International Building Code®.

The 2012 edition reflects changes in the 2012 IBC and its referenced ASCE 7-10 standard. The manual also incorporates the results of

research undertaken by MBMA, its member companies, and other industry groups. Significant additions and updates include, but are not limited to, the following:

- The 2010 Supplement to the *2006 Metal Building Systems Manual* has been merged into the body of the *2012 Metal Building Systems Manual* and its appendices.
- Considerable updates were provided in the Design Practice and Load Application chapter, which provides guidance on the applications of loads to metal buildings from the 2012 International Building Code and ASCE 7-10 standard.
- The updated Climatological Data by County chapter provides tabulated wind, seismic, rain, and snow-load data by United States county based on the 2012 IBC, ASCE 7-10 standard, and rainfall-intensity loads from the National Oceanic and Atmospheric Administration (NOAA).
- The Fire Protection chapter includes additional fire-rated wall assemblies recently tested at Underwriters Laboratories, Inc. (UL) that will provide 1- and 2-hour fire-resistance rating of metal building exterior walls, along with five new 1-hour, head-of-wall and continuity joint assemblies.

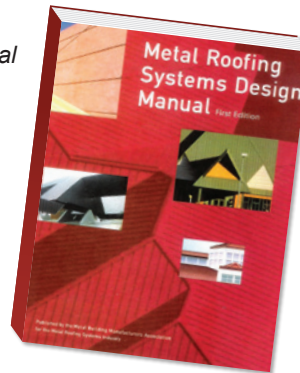
The *2012 Metal Building System Manual* is 724 pages and comes with a complimentary CD-ROM. The CD includes an electronic version of the manual along with 58 metal roof AutoCAD details.

MBMA EDUCATIONAL AND TECHNICAL RESOURCES PROVIDE VALUABLE INFORMATION FOR THE INDUSTRY

MBMA continues to lead the metal building systems industry and fulfill its mission by providing educational, research and technical resources that enhance the collective interests of the metal building systems industry. These resources include an increasing number of metal building design guides and manuals that are invaluable for anyone who works with metal buildings anywhere in the world. This past year, in order to help users understand some of these guides and their technical content, MBMA continued its popular Energy and Fire Resistance webinars. Additionally, the association now provides an array of information resources available for free download at www.mbma.com.

Metal Roofing Systems Design Manual – Second Edition

MBMA released the second edition of the *Metal Roofing Systems Design Manual* in 2012. The edition updates this important industry guide to current standards and codes, which includes the 2012 International Building Code and the American Society of Civil Engineers/Structural Engineering Institute (ASCE 7-10). It also incorporates the results of research undertaken by MBMA, its members, and other industry groups. It comes with a separate searchable CD-Rom that includes time-saving AutoCAD roofing details.



MBMA Webinars

MBMA developed two webinars that were successfully introduced in the fall of 2011 and continued in 2012. The Energy Committee introduced the *Energy Code Compliance for Metal Building Systems* webinar while the Committee on Fire Protection and Related Insurance Matters instituted the *Fire Code Compliance for Metal Building Systems* webinar. These two webinars target member companies, builders, code officials, contractors, architects and designers of metal buildings. Both of these webinars will continue in 2013.

MBMA Manuals and Design Guides

MBMA continues to publish and make available for purchase all of its most recent manuals and design guides through the MBMA bookstore at

www.mbma.com/bookstore. In addition to the *Metal Building Systems Manual* and the *Metal Roofing Systems Design Manual*, other design guides include the *Fire Resistance Design Guide for Metal Building Systems*, the *Energy Design Guide for Metal Building Systems*, *Concrete Masonry Walls for Metal Building Systems*, published jointly with the National Concrete Masonry Association (NCMA) and the *Seismic Design Guide for Metal Building Systems*, published jointly with the International Code Council (ICC), and the *Steel Design Guide - Frame Design Using Web-Tapered Members*, published jointly with the American Institute of Steel Construction (AISC). As new information becomes available and changes are made to all of these guides, updates and errata are provided in MBMA's online bookstore.



Free Educational Resources

In addition to the manuals, design guides and webinars, MBMA has a library of free educational resources available on the Association's website. Many of these publications were previously available for purchase, but MBMA now offers them as free, online downloads. This effort exemplifies the association's commitment to providing broad-based education to the industry and to those who seek to understand the metal building alternative. Available items include the following:

Insurance Fact Book and Series of 14 Bulletins Fire Resistance Bulletins and Head-of Wall Information

AIA Architectural Reprint: "An Integrated Design Approach Offers Flexibility, Economy, Durability"

Three case studies describe how metal buildings met the needs of various companies.

- **New Corporate Headquarters is Paradise by the Bay**
- **Steel Rolling Mill Rises from Former Swamp.**
- **Trucking Company Consolidates Operations.**

Condensation Fact Sheet

Cool Metal Roofing

Guide Specifications: Metal Building Systems

Guide Specifications: Metal Roofing Systems

The Solutions Series is a set of four, eight-page brochures, each of which describes the advantages of metal building systems in specific applications.

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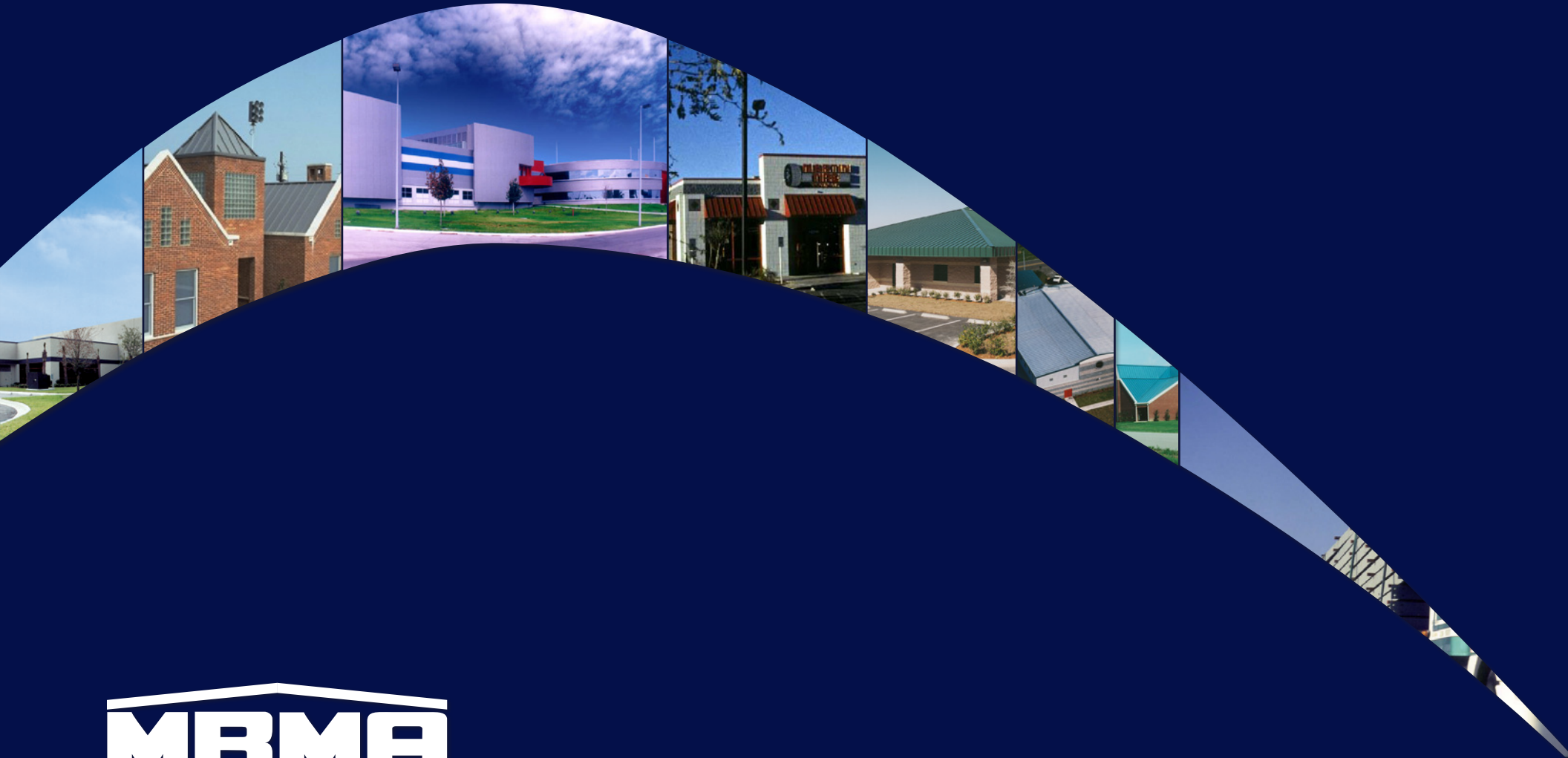
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