

A photograph of a modern metal building with stone walls and large windows. The building is constructed with grey metal siding and features two large, multi-paned windows. The windows reflect the surrounding landscape and show stacks of wooden barrels inside. The building is surrounded by landscaping, including tall grasses and purple flowers. The sky is a warm, golden color, suggesting a sunset or sunrise.

# FIRST CHOICE

Metal building systems account for **over 50% of the total** low-rise business construction market in the U.S.

**MBMA**  
METAL BUILDING MANUFACTURERS ASSOCIATION®  
**2014 ANNUAL REPORT**

# BUILDING TRENDS



## ON THE HORIZON

Metal buildings are designed to accommodate a multitude of insulation types which can be easily installed during construction and provide superior performance over other construction methods.

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Growing U.S. onshoring trends require fast, efficient construction of facilities. Building owners will benefit from the efficient and accurate delivery of high-performance metal buildings that are custom manufactured.

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Government entities throughout the U.S. are demanding the adoption of low-energy building codes. Metal building systems are custom designed to advance a low-energy, high value model.

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Innovations in metal building envelope facades are providing for louvers, panels, architectural wood products, solar shading screens, and more, to implement stunning architectural visions.

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# FIRST CHOICE: METAL BUILDINGS LEAD<sup>THE</sup> MARKET



Brad Robeson,  
MBMA Chairman

## MBMA MISSION

MBMA provides leadership, research, and education that increase the prominence and usage of metal building systems as the premier solution for performance, aesthetics, and sustainability in building construction.

We are proud that MBMA is the recognized industry leader when it comes to research and engineering for metal building systems; and we are also proud that MBMA members are leading the charge to continue building momentum for the metal building systems industry. Part of the excitement is generated by the implementation of MBMA's strategic 3-year plan which we put in place this year. The effort is led by the right people and it ensures that we "Educate, Innovate and Elevate" the perception of metal buildings so we can effectively achieve new measures of growth. My thanks to all who are giving their time to make sure this plan succeeds.

The strategic plan focuses on initiatives to lead our forward actions. These include:

- Leveraging Technical Capabilities
- Elevating the Industry's Perception
- Advancing Sustainability
- Stimulating Innovation

The strategic plan will guide our actions and will result in metal building systems as the preferred choice in construction material solutions.

As we close out a successful year, I would like to thank Chuck Praeger, MBMA's Assistant General Manager, for his leadership within the organization through the years. As he moves into retirement, we wish him and his wife, Denece, years of fun and freedom. I also thank Chuck Stockinger for his great work as MBMA's General Manager for over 40 years. He has reduced his work schedule as he heads toward full retirement as well. My deepest thanks to both men.





# HIGHER GROUND: METAL BUILDINGS

## BUILD A BETTER FUTURE

Charles Stockinger  
MBMA General Manager

Metal building systems are far more sophisticated today than they were a decade ago; and due to MBMA's leading edge research programs, further evolution is not far down the road. MBMA has 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 these innovations, we are moving the industry to a higher level and helping to position the industry for long-term growth and greater acceptance as THE solution for low-rise buildings.

MBMA's members attest that the industry has come a long way. One factor in its evolution comes through the success we have achieved in partnering and collaborating to work toward a common purpose and to conduct major research in seismic design, sustainability features, energy efficiency and fire resistance projects. This research has allowed us to establish new engineering methods to document best practices and influence codes and standards.

MBMA serves as a forum for developing common industry objectives that help our member firms to achieve their missions. As these members establish and develop industry leaders, we keep them ahead of the curve by providing valued benchmarking trend data and access to state-of-the-art manufacturing and management tools. Through our interaction with the member firms, MBMA perpetuates technology transfer and promotes safety and quality assurance in manufacturing and engineering.

MBMA financial operations totaled \$1,886,353 in 2014 and included significant research, code and standards investment with oversight by the Executive Committee and Board of Directors. The association financials were audited by KPMG.

We are very proud to serve our members and to bring industry standards to a whole new level.

## ABOUT MBMA

MBMA has served metal building systems manufacturers and suppliers for 58 years. Its membership represents more than \$2 billion in annual steel shipments and accounts for over 50% of the total non-residential, low-rise construction market in the United States. MBMA provides engineering leadership through the many research programs 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 and to elevate the technology used to produce them.

# MBMA

## LEADERSHIP

Charles M. Stockinger  
*General Manager*

Charles E. Praeger  
*Assistant General Manager*

Daniel J. Walker, P.E.  
*Assistant General Manager*

W. Lee Shoemaker, Ph.D., P.E.  
*Director of Research and Engineering*

Jay D. Johnson, LEED AP  
*Director of Architectural Services*

Andres A. Carvallo  
*Staff Engineer*

Jennifer M. Oblock  
*Administrative Assistant*

Eva M. Brunk  
*Engineering Administrative Assistant*

MBMA has been managed by Thomas Associates Inc. since 1956. Thomas is one of the longest-running success stories among association management firms in the United States. It has an extensive and diverse technical team that can support the codes, standards, and research goals of its various client associations. Such synergy allows it to expand research capabilities and bring in human resources that enhance the technical strength of MBMA.



# COMMITTEE ACCOMPLISHMENTS IN 2014



# ENERGY COMMITTEE

Ron Kuenkler, Committee Chairman

## 2014 ACCOMPLISHMENTS



**CODES MONITORED:** The MBMA Energy Committee continues to monitor and provide direction to energy codes and standard governing bodies, such as ASHRAE 90.1 and the ICC International Energy Conservation Code (IECC).

**RESEARCH CONDUCTED:** The committee also continues to work with Oak Ridge National Laboratory (ORNL) on the Flexible Research Platform (FRP) project. A full-scale metal building on the ORNL campus is computer controlled and continuously monitored with sophisticated sensors and equipment to provide unique research data on the performance of a metal building. Wall types, roof types, windows, light-transmitting panels and other aspects of a building are all changed out to discover which combinations save the most energy for metal building owners. The focus in 2014 was to study the air infiltration of a typical metal building compared to the requirements in the energy codes, standards, and above code programs to maximize performance.

**EDUCATION SHARED:** Throughout 2014, the committee oversaw monthly educational webinars for contractors, designers, and building officials to equip them with a solid understanding of the ASHRAE 90.1 and the IECC energy code requirements and how metal buildings comply. Additionally, MBMA educated participants on applying the semi-heated space provisions within ASHRAE 90.1 for code compliant metal building systems. The webinar program is an extension of the MBMA *Energy Design Guide for Metal Building Systems*, which all participants receive as part of their webinar registration, as well as the latest information on ASHRAE 90.1-2010 and the 2012 IECC provisions.

## 2015 EXPECTATIONS

The Flexible Research Platform project will focus on building envelope insulation performance in 2015. The test building will be retrofitted with a new metal roof, and wall panels with high-performance insulation, and then monitored to gauge improvements in measured energy use. The results should show the benefit of a high performance metal building system and help those that specify metal building systems to select the most energy-efficient combinations.

We will better equip contractors to successfully pass energy code inspections. An extensive survey of over 300 metal building contractors will help us to tailor a condensed energy design guide publication to support the construction industry.

Metal building case studies are also being developed that will demonstrate building configurations that meet the energy codes using COMcheck™ software. The target audience for this resource will be architects, engineers and builders. The case studies will be included in the new contractor's energy design guide and on the MBMA website for all to use.

MBMA THANKS OVER 250 VOLUNTEERS WHO GIVE TIRELESSLY TO THE WORK OF MBMA COMMITTEES: AARON BATCHELLOR - DENNY MCDEAVITT - JIM MARKS - TIM RITCHIE - KEITH SHEDD - RANDALL PAUL - TOM BOAL - GEORGE GLOVER - MIKE HEIDARY - ROBERT MILFORD - WES BROOKER - RON KUENKLER - JAMES MIZE - JIMMY MOSS - ROCKY NORTON - DONALD TOBLER - DAVE VOLK - JEFF WALSH - CRAIG JOSS - BRIAN RIBIC - DANIEL WISE - TIM RITCHIE -

Metal building systems come in a variety of shapes and sizes, but at their core they all utilize a custom engineered structural steel frame and a high-performance metal roof. The versatility and flexibility of metal building systems allows for a myriad of colors, shapes, textures and designs.



## COMMITTEE MEMBERS

SCOTT BOWERS - ED LASH - CHARLOTTE TYNER - MIKE MCLAIN  
REINERS - CHRIS ROBBINS - JOHN UNDERWOOD - ZACRY WALKER - TOM WRIGLEY - RANDY WEBB - TEISEN WEBB - M  
ROHENA JHENSEN - TORI JOHNSON - DANKUMM - RICHARDLEY - IGOR MARINOVIC - SCOTT MARTIN - TOMMY TAGGART  
- TOM GILLIGAN - ALLEN HARROLD - MARK HENRY - GUY BETTENCOURT - DAN GAO - CLAUDIA GOMEZ - JEFF POWERS



# SUSTAINABILITY COMMITTEE

John Underwood, Committee Chairman

## 2014 ACCOMPLISHMENTS



### CODES INFLUENCED:

The High Performance Green Building Task Group submitted a number of proposals affecting the next editions of the International Green Construction Code (IgCC), ASHRAE 189.1 Standard

for the Design of High-Performance Green Buildings, and the LEED Rating System for New Construction and Major Renovations. This sub-group within the Sustainability Committee monitors changes to green and sustainable codes and standards, as well as voluntary rating systems, for the benefit of the metal building systems industry.

**IMPORTANT DATABASE IMPACTED:** The Life Cycle Assessment (LCA) Task Group was successful in adding the metal building Life Cycle Inventory (LCI) data into the NREL U.S. LCI database. This is highly significant since LCA practitioners depend on this green attributes database to compare metal buildings against other forms of construction. This should impact the acceptance and appreciation for the attributes of metal buildings industry-wide.

**THE RIGHT TOOLS:** With the completed Life Cycle Assessment (LCA) report, the third-party verified Life Cycle Inventory (LCI) data, and the forthcoming Environmental Product Declarations, the industry will have a complete set of tools to use in educating the industry about metal buildings' contribution to sustainable design.

## 2015 EXPECTATIONS

A comparison of the environmental impact of metal buildings and alternate forms of construction via the recently updated Athena Institute's Impact Estimator® will be completed and followed by an education initiative to engage the industry and the design public.

The framework for an industry-wide Environmental Product Declaration (EPD) for metal buildings will be developed to compliment the final LCA report documenting the life cycle performance of metal buildings.

Throughout 2015, the Sustainability Committee will spearhead distance-learning webinars for the membership (as well as others in the industry) to explain why metal buildings are the first choice building solution from a sustainable construction perspective.

**MBMA DEVELOPS THE  
SCIENTIFIC EVIDENCE  
TO SHOW THE INHERENT  
ADVANTAGES OF STEEL  
AND DOCUMENTS ITS  
ENVIRONMENTAL  
FOOTPRINT.**

Attractive exterior building finishes – incorporating architectural metal panels, expanses of glass, brick and masonry – are just some of the reasons auto dealers across America invest in metal systems to build their businesses...and their images.



## COMMITTEE MEMBERS

- DAVID PHELPS - JOHN PRICE - GARY SCHUMACHER - COREY T  
DEAN - CHARLOTTE EDWARDS - PAM LOWRY - ELVIA MORA - TOM GRANITZ - RICK KINCY - CRAIG BUCK - HERB REFFE  
RICHARDS - STEVE CAMPBELL - MEL COWGILL - RICKY MCDANIEL - IRVING PYLATE - ROGER STORY - MARK HENDRIXS  
- WAYNE GREGORY - MIKE HERRIN - CATHY JONES - ROBERT LOZA - MARK SPECHT - LARRY TENNANT - BRAD HEFFELM

# COMMITTEE ON FIRE PROTECTION & RELATED INSURANCE MATTERS

Bob Hodges, Committee Chairman

## 2014 ACCOMPLISHMENTS



### FIRE PROTECTION EDUCATION:

The committee completed its 3rd year of educating MBMA members, builders and designers about fire protection solutions for metal buildings via the MBMA fire protection webinar program. This has

opened up new markets and helped define a more positive image of the industry.

**LITERATURE UPGRADED:** An insurance study resulted in an updated and newly formatted MBMA Insurance Fact Book and 15 Insurance Bulletins. These provide a wealth of information on insurance options for metal building systems. Included are resources on insurance organizations, insurance facts, types of construction (and how each impacts insurance rates) and how metal building insurance rates compare to other types of construction.

**TRUSTED ADVISORS:** MBMA Technical staff and the committee provided technical assistance on metal building fire protection and insurance issues to both MBMA members and others within the industry.

## 2015 EXPECTATIONS

The committee will further expand its influence on the construction marketplace by converting the fire protection webinars into a series of free, online video learning segments.

The MBMA Insurance Bulletins and Insurance Facts Book will be introduced to a substantially larger audience and offer a new avenue of influence among commercial and public building owners, contractors, designers, and developers. An understanding of insurance and how metal buildings compare is a critical element to influence even greater market acceptance and growth.

A contractor focus group will be organized to assist members in reviewing the Insurance Bulletins, Insurance Fact Book, and Fire Protection Bulletins to identify ways to improve

**MBMA MEMBERS  
CONSTRUCT THE  
VAST MAJORITY  
OF ALL METAL BUILDING  
SYSTEMS BUILT IN THE  
UNITED STATES TODAY.**

them and extend their reach. This effort will result in an attractive promotional plan to penetrate more end-use markets.

The committee will also continue to maintain and update existing MBMA UL fire ratings. They will investigate methods for including additional roof insulation systems (such as filled cavity and liner systems) to provide a more attractive, complete system for both fire protection and energy efficiency.

Metal office and business buildings are energy efficient and durable, and maintenance costs are kept low due to the long-life building system and the weather-tight performance of a metal roof.



COMMITTEE MEMBERS

- DEAN JORGENSON - ED KOHUTEK - DAPHNE BARBOUR - CHRIS
- ERIC HAUGEN - CLARK HINING - DONNA HISE - MICHAEL JORDAN - BROOKE MATHES-YEP - STANLEY REID - BRAD R
- JAKE EDMONDS - BONNIE FATER - TERRY FORD - DARIN GARDNER - RICK HAWS - RICH HUBER - ANDY JAWORSKI -
- ALBERT - CHAD FEAZEL - MARK WEAVER - WILL FELAND - CORY HANN - BEN HICKS - STEPHEN OWEN - THOMAS M

# SAFETY COMMITTEE

Darin Gardner, Committee Chairman

## 2014 ACCOMPLISHMENTS



**ENHANCED FOCUS:** The MBMA Safety Committee added an enhanced focus on member interaction, cultural growth and leadership training in 2014.

**KNOWLEDGE SHARED:** The committee organized a well-attended annual

workshop which addressed leadership topics and offered exercises in situational analysis and sharing best practices.

**STANDARDS INCREASED:** The committee voted to raise the already high standards for eligibility to receive MBMA Safety Awards. They also reduced the number of award categories to further promote high expectations and to continue to raise awareness of the importance of a safety-first mindset. An effective safety lunch-and-learn webinar program continues to achieve record attendance and the number of participants increases each year.

**AWARDS BESTOWED:** Twenty MBMA member companies were awarded in-plant safety awards at MBMA's Spring Meeting. There were

four winners of the Superior Safety Award this year who were recognized at the workshop for their outstanding efforts. A press release was distributed to national publications providing recognition to the award winners.

## 2015 EXPECTATIONS

The committee will host a safety workshop with an emphasis on attendance from member company front line staff. A second safety meeting later in the year will provide advanced leadership education for committee members.

The lunch-and-learn webinars will be refreshed with four new programs to promote greater in-plant participation from member companies.

Relationships will be enhanced with national safety education organizations, so those who are active in participating and planning the safety training webinars and workshops may receive continuing education credits for their participation.

**METAL BUILDING SYSTEMS  
ARE A MAIN-STAY IN THE  
U.S. – FROM SHOPPING  
CENTERS TO AIRPORT  
HANGARS, HOSPITALS TO  
SCHOOLS, WAREHOUSES  
TO FACTORIES,  
OFFICE BUILDINGS  
TO MEDICAL CENTERS.**

# ACCREDITATION COMMITTEE



Chuck Haslebacher, Chairman of the MBMA Accreditation Committee, affirms that the AC472 accreditation program is a highly impactful quality assurance initiative that continues to set the pace for the industry. Administered through the International Accreditation Services (IAS), the program:

- Establishes a quality assurance standard for metal building systems manufacturers
- Enhances overall quality
- Innovates and improves processes
- Evaluates vendors, their capability and product offering
- Looks for processes and procedures that proactively assess quality and eliminates errors
- Audits each accredited company's quality assurance and product quality
- Conducts reviews and establishes new standards as the industry evolves
- Builds quality awareness among employees

The program is based on the requirements of Chapter 17 of the International Building Code and provides code officials with a means to approve the inspection program of manufacturers involved in the fabrication of metal building systems. It is a program that also benefits building owners, contractors, and developers, as well as adding a higher level of credibility to all accredited building system manufacturers.



# TECHNICAL COMMITTEE

Scott Russell, Committee Chairman



In 2014, the Technical Committee formed a Strategic Planning Steering Group to answer the request of MBMA's leadership to take action on the strategic plan. This Steering Group is reviewing all recently completed

research to examine its effectiveness and translation to market growth while seeking new initiatives. Here are some of the exciting research activities currently underway.

## RESEARCH INITIATIVE - QUANTIFYING SEISMIC BEHAVIOR OF METAL BUILDINGS

**GOOD PERFORMANCE:** Metal building systems have been observed to exhibit significantly better performance in actual earthquake events than current building codes give credit for.

There are also height limits placed on metal buildings in high seismic areas that we feel are overly restrictive. The committee will attempt to quantify this real world performance and codify it for systems construction. This is good news because:

- We can avoid the conservatisms in the current seismic provisions.
- We will not be subject to the potential additional conservatisms being discussed on the codes and standards committees for current seismic provisions.
- We are learning more about the performance of tapered built-up sections and untapped reserve capacity that will result in more economical metal building frame designs.

This work is progressing well. We completed Step 1 of the next phase and will work toward establishing metal building-specific seismic criteria to submit to the building codes.

## RIGID FRAME WEBS - IMPROVED SHEAR STRENGTH

**GOOD NEWS:** We are challenging the significant conservatism in the AISC Specification for the shear strength of unstiffened slender web members. Once implemented, our recommendations will make the design of rigid frames more cost effective and competitive where shear controls the design. We are conservatively expecting a

1-3% overall project weight savings once this is implemented.

Dr. Brad Davis at the University of Kentucky has completed the testing and we are now developing a proposal to the AISC Specification Committee that would increase the current shear capacity by as much as 50%. We are developing support for the proposal within AISC and have high expectations that we will be successful in seeing this change become part of the 2016 AISC Specification and the Building Codes that reference it.

## BOLTED END PLATE CONNECTIONS

**NEW DESIGNS:** We're in the midst of a study to develop additional bolted end plate configurations for use in metal building design. This will allow metal building manufacturers to optimize designs and provide a more competitive product in the construction market place.

Dr. Matt Eatherton at Virginia Tech has designed the specimens needed to add three additional configurations to AISC/MBMA Design Guide 16. These specimens are being fabricated and shipped for testing in the near future. In addition, Dr. Tom Murray, an emeritus professor at Virginia Tech, is addressing

With economical designs that accommodate larger interior spaces and high ceilings, metal buildings make excellent fire stations, police stations, recycling facilities, and government service centers.



COMMITTEE MEMBERS

WILLIAM HART - BRIAN MARSHALL - GENE MONTAGUE - MATT  
GABE SAVELY - DON SWITZER - BILL BEALS - DENNIS KACZMAREK - RANDY ALLEN - JEFF DOYLE - DAVID FULTON  
PETRAT - BRYAN WHITE - BRAD CURTIS - PAUL HOWELL - JOSH LITTLEFIELD - GREG PIRTLE - DAVID WEATHERFOR  
CRAIG EDWARDS - CHUCK HASLEBACHER - BOB HODGES - SKIP HYDER - JIM PECKHAM - CHUCK RIMSKY - MAX SAF



improvements and additions to Design Guide 16. MBMA is working with AISC to develop a publication plan for the new DG 16.

### **WIND LOADS: STUDY LEADS TO NEW DESIGN PROCEDURES TO ACCOMMODATE OVERHEAD DOORS**

**NEW DESIGNS:** We are in the process of developing a design procedure for flexible jambs, using research which evaluated the catenary forces on an overhead coiling garage door in a metal building. This project will benefit the industry in two ways:

1. Provide an accepted procedure for designing flexible jambs for overhead vehicular rolling doors
2. Offer assurance to the larger engineering community and building officials that flexible-jamb construction is properly addressing this condition

Our study of the behavior of overhead metal doors has been underway for several years in coordination with DASMA, the Door and Access Systems Manufacturers Association. A tool has been developed to evaluate the door forces imparted to the jamb based on the relative stiffness of each. We are now working on finalizing a recommendation. Our goal is to integrate this tool into regular design practice and to educate building officials and builders about the proper selection of doors and jamb design.

### **NEW INFORMATION: UPDATES COMING TO AISC/MBMA DESIGN GUIDE 25**

**NEW RESOURCE:** We are in the process of completing improvements and enhancements to MBMA/AISC Design Guide (DG) 25, Frame Design Using Web-Tapered Members. One of the keys to the optimization of material that goes into a metal building is the unique design of tapered member frames. DG 25 has been recognized as a great step forward in helping to legitimize the design methods used by metal building manufacturers; but there are some limitations that prohibit the industry from fully embracing it. The improvements underway will result in greater acceptance and further raise awareness in the marketplace about the advantages of metal buildings. Dr. Don White of Georgia Tech is assisting MBMA in this effort.

### **RESOURCES: A NEW MBS INSPECTION HANDBOOK - COMING SOON!**

**COMING SOON!** MBMA's new Metal Building Inspection Handbook will offer valued information to building officials, engineers-of-record, contractors, erectors, owners, MBMA members, and the insurance industry. It will help them clearly understand what to look for when inspecting a metal building project, including foundations, primary frames, bracing, secondary structural, cladding, miscellaneous (drainage, insulation, cranes systems, etc), and special elements.

# **MBMA ANNOUNCES**

## **NEW COMMITTEE**

The MBMA Communications Steering Committee was established in 2014 to work towards achieving the following objective from the 2014-2016 Strategic Plan:

*To enhance and elevate the perception of metal building systems as a high quality, adaptable, durable, energy efficient and sustainable building construction approach when properly installed which produces economy, speed to market and single source control.*

This committee replaces MBMA's former Marketing Committee whose scope and responsibility had evolved into a strategic communications role. The committee is led by Brooke Mathes-Yep, with Leslie Clark serving as interim committee chair.

The long-span framing, layout options, and strength of a metal building's steel framing system allow for overhead cranes and offers an almost unlimited array of configurations for manufacturing spaces.



# EDUCATIONAL & TECHNICAL RESOURCES

## 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. These include an increasing number of design guides and manuals that are invaluable for anyone who works with metal buildings anywhere in the world. As new information becomes available and changes are made to all of these guides, updates are provided in MBMA's online bookstore at [www.mbmamanual.com](http://www.mbmamanual.com). MBMA also provides an array of free resources that can be found at [www.mbma.com](http://www.mbma.com).

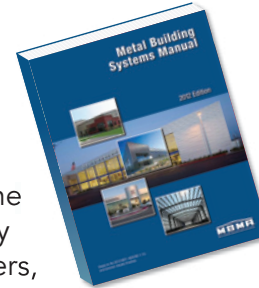
## MBMA WEBINARS

MBMA developed two webinars that were successfully introduced in the fall of 2011. The Energy Committee developed the Energy Code Compliance for Metal Building Systems webinar while the Insurance Committee developed 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 will continue through 2015. Details are available at [www.mbmamanual.com](http://www.mbmamanual.com).

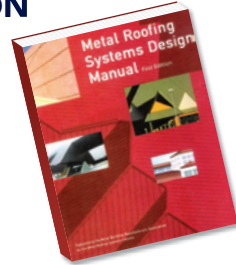
## 2012 METAL BUILDING SYSTEMS MANUAL

- Nationally recognized reference manual; the primary resource for the metal building industry
- Used by building owners, manufacturers, general contractors, erectors, engineers, architects, specifiers, inspectors, and other building professionals
- 724-page resource comes with an electronic version of the manual along with 58 metal roof details in AutoCAD format
- Covers the 2012 International Building Code and the American Society of Civil Engineers/ASCE 7-10



## METAL ROOFING SYSTEMS DESIGN MANUAL - SECOND EDITION

- An important industry guide to current standards and codes
- Incorporates the results of research undertaken by MBMA, its members, and other industry groups
- Comes with a searchable CD that also includes the AutoCAD roofing details



## FIRE RESISTANCE DESIGN GUIDE FOR METAL BUILDING SYSTEMS

- Addresses fire protection solutions related to metal building systems
- Explains fire test standards
- Includes prescriptive fire protection practices related to occupancy and construction options
- Offers extensive information on fire resistive provisions related to construction elements



Recognized by building codes to be non-combustible, metal buildings can be designed with nearly unlimited interior space – an exceptional asset for distribution facilities.



## ENERGY DESIGN GUIDE FOR METAL BUILDING SYSTEMS

- A complete reference for designing and constructing energy efficient metal buildings
- Includes details on a variety of state energy codes, standards, and compliance tools
- Provides information on cool roofs and a daylighting design guide, with appendices on photovoltaic roof panels



## SEISMIC DESIGN GUIDE FOR METAL BUILDING SYSTEMS

- Resource to help engineers, building officials and plan checkers ensure that designs are compliant with the requirements of the 2006 International Building Code® (IBC®)
- Published jointly with the International Code Council (ICC)
- Includes four practical design examples to illustrate acceptable approaches for dealing with the common seismic design issues and provides insight into the impact of recent code developments



## CONCRETE MASONRY WALLS FOR METAL BUILDING SYSTEMS

- Published jointly with the National Concrete Masonry Association (NCMA)
- Highlights the advantages of metal buildings using concrete masonry hardwalls
- Includes recommendations on masonry design standards and industry practices, design aids, construction recommendations and details for integrating masonry with metal buildings



# MBMA MEMBERS



A&S Building Systems  
AIM Metals, LLC  
All American Systems  
Alliance Steel, Inc.  
American Buildings Company  
Associated Steel Group, LLC  
BC Steel Buildings, Inc.  
Behlen Building Systems  
Bigbee Steel Buildings, Inc.  
BlueScope Buildings North America, Inc.  
Butler Manufacturing  
CBC Steel Buildings  
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Chief Buildings  
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Dean Steel Buildings, Inc.  
Garco Building Systems, Inc.  
Golden Giant, Inc.  
Gulf States Manufacturers  
Heritage Building Systems  
Inland Buildings  
Kirby Building Systems, Inc.  
Ludwig Buildings Enterprises, LLC  
Mesco Building Solutions  
Metal Building Software, Inc.  
Metallic Building Company

Mid-West Steel Buildings  
NCI Building Systems, Inc.  
Nucor Building Systems  
Oakland Metal Buildings, Inc.  
Pinnacle Structures, Inc.  
Red Dot Buildings  
Robertson Building Systems  
Ruffin Building Systems, Inc.  
SBC Building Systems, LLC  
Schulte Building Systems, Inc.  
Spirco Manufacturing  
Star Building Systems  
Steel Systems  
Trident Building Systems, Inc.  
Tyler Building Systems, L.P.  
United Structures of America, Inc.  
Varco Pruden Buildings  
Vulcan Steel Structures, Inc.  
Whirlwind Steel Buildings, Inc.

# MBMA ASSOCIATE MEMBERS

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Akzo Nobel Coatings, Inc.  
Applied Testing & Geosciences, LLC  
Arcelor Mittal USA  
Arcelor Mittal Dofasco Inc.  
Architectural Testing, Inc.  
Atlas Bolt & Screw Company  
Bay Insulation Company  
Benchmark Consulting & Inspection LLC  
Birmingham Fastener Inc.  
Building Research Systems Inc.  
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Commercial Metals Company  
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Diamond Door Products Ltd.  
Dominion Building Products  
Dow Chemical  
Dynamic Fastener Service  
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ITW Polymers Sealants North America  
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Precoat Metals  
Preferred Solutions, Inc.  
Preformed Line Products  
Roof Hugger, Inc.  
Royal Coatings, Inc.  
S-5! Attachment Solutions  
Sealed "N" Safe  
SFS intec, Inc.  
Sika Corporation  
Silvercote Lamination, LLC  
Specialty Plus, LLC  
Steel Dynamics, Inc.  
Tell Manufacturing  
Therm-All  
Triangle Fastener Corporation  
United States Steel Corporation  
Valspar Corporation  
VELUX Design and Development  
Company USA, Inc.





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