

Forging the Future of Metal Building Systems Through

EDUCATION



2021 ANNUAL REPORT

Contents

03

CHAIRMAN'S MESSAGE

Educate Everybody! Let's Help People Grow In Knowledge Every Day

05

MANAGEMENT PERSPECTIVE

The Roaring Twenties?

13

ARCHITECT COMMITTEE

A Young Committee, A Fresh Perspective & A Challenge

07

MBMA 65-YEAR ANNIVERSARY

A Timeline of Achievements

15

EDUCATION COMMITTEE

A Very Productive Year!

09

MBMA VOLUNTEERS MAKE US STRONG

Over 500 People Help MBMA Achieve Great Goals

17

ENERGY COMMITTEE

Assuring Energy Efficiency in Metal Buildings Is Our Top Priority

11

ACCREDITATION COMMITTEE

Accreditation Gives Immediate Credibility to Metal Building Industry Firms

19

FIRE & INSURANCE COMMITTEE

Research Addresses Hail and Fire Challenges



Girl Scouts of Western Oklahoma Camp Trivera
Oklahoma City, OK

21

MARKETING COMMITTEE

Marketing Initiatives Make Knowledge Sharing a Priority

29

SUSTAINABILITY COMMITTEE

Enhancements Completed for EDP, LCI and LCA Industry Tools

37

MBMA MEMBER MANUFACTURING PLANTS

Metal Building Manufacturing Facilities Across North America

23

MEMBERSHIP COMMITTEE

Celebrating Success as Member Numbers Rise

31

TECHNICAL COMMITTEE

Technical Challenges, Resulting Solutions: MBMA Helps to Improve Codes and Standards

39

MBMA MEMBERS

A Listing of Companies That Make MBMA Strong

25

SAFETY COMMITTEE

Safety: Always Relevant, Always Essential

33

ANATOMY OF A METAL BUILDING SYSTEM

Metal Building Structures

27

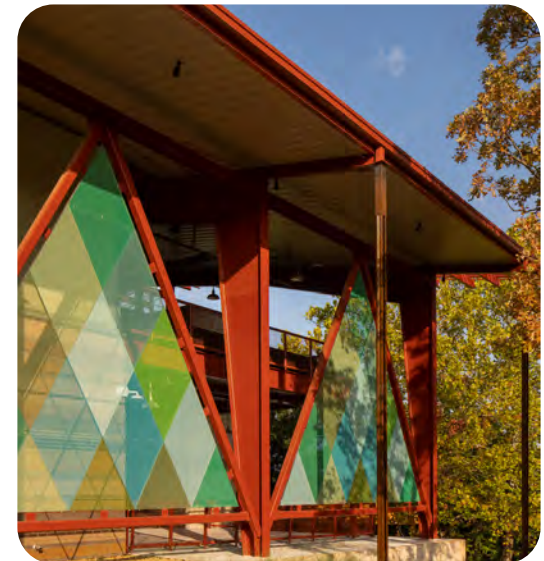
STATISTICS COMMITTEE

We're All About Numbers

35

EDUCATIONAL & TECHNICAL RESOURCES

Technical Manuals, Videos, Webinars, Research Reports & More





GREG PASLEY
MBMA Chairman



EDUCATE EVERYBODY! LET'S HELP PEOPLE GROW IN KNOWLEDGE EVERY DAY

As I look back over the last year, I cannot help but think about what I've learned and how our industry has changed through this precarious pandemic. Personally, I see a lot of good as the pandemic forced us to assess our businesses and our industry, and to strengthen our resiliency in the face of many challenges.

Education is a foundational principle at MBMA. And as chairman of the association this year, it became abundantly clear to me the role that the MBMA plays in education and lifelong learning. This focus is invaluable, especially as we look for better ways

to attract and retain talent in our own organizations—and while we inform our potential customer base about the many benefits of our building solutions. When mentioning education in our industry, our minds typically go to our engineers and technical staff—what are we doing to keep them on the cutting edge? But I believe we need to be far more aggressive in providing useful training and development for employees at all levels. What has become even more apparent to me is the importance of fostering learning across our organizations—and this starts on the shop floor.



Many of us have relationships with local trade schools, and while this may have been enough in the past, today we need to support STEAM (science, technology, engineering, arts and mathematics), vocational and business education programs to develop talent for our entire future workforce. It is up to us to reach deeper, to educate and to fill the gaps.

It is important that we leverage all available tools to train current employees and to influence future ones. MBMA has over 50 videos on YouTube that educate and inform. Two of my favorites are the

“How It’s Made” and “How It’s Built” videos, which help everyone see how our buildings are manufactured and erected. These engaging programs are available to view along with others at www.youtube.com/MBMAmedia.

It is up to us as leaders to push our industry forward, and education is a key part of this. We can all learn something new every day!



The Firehouse Shelter · Birmingham, AL



TONY BOUQUOT
MBMA General Manager



THE ROARING TWENTIES?

William Harding won the U.S. presidential election of 1920 under the campaign slogan, “A Return to Normalcy.” The normalcy to which he was referring was a time before World War I and the 1918 flu pandemic. Despite his best efforts, Harding found there was no going back to those simpler times. A post-war, post-pandemic boom in the emerging industries of automobiles, movies, electric appliances, telephones and air travel fueled a new normal known as the Roaring Twenties.

One hundred years later, we find ourselves at the beginning of a new ‘20s. With the emergence of three new vaccines, we entered 2021 hopeful for a repeat of a post-pandemic Roaring Twenties. As 2021 comes to a close we find, just as Harding did, the global economy is never quite that simple.

In the metal building systems industry, 2021 saw a surge in demand as numerous projects that had been delayed due to the pandemic were

given the green light. Many members subsequently invested in facility expansion and talent acquisition. They also targeted growing markets like distribution and specialty retail.

Unfortunately, that demand was coupled with a shortage in our primary raw material: steel. Economics 101 kicked in and the increased demand coupled with decreased supply led to higher prices. MBMA stepped in as an advocate on our members’ behalf, reaching out to steel suppliers and advocating for efforts to close the supply/demand gap.

As MBMA members ramped up production, they also adapted to the realities of a lingering pandemic. Annual builder meetings hosted by building manufacturers were converted to virtual events. MBMA followed suit, holding a virtual spring meeting in conjunction with our partners at MBCEA. Online meetings continued through the summer until finally we were able to meet face-to-face, starting with a late-August board

of directors meeting that was followed by three committee meetings: safety, accreditation and energy/sustainability. These were held as hybrid events with both in-person and virtual attendees. MBMA invested in new technology to make the interaction among attendees as seamless as possible.

At the annual Safety Workshop, attendees discussed the ongoing challenges of keeping employees safe not only from typical industrial threats, but also from the COVID-19 delta variant. They shared successes and challenges in their companies' safety programs and discussed the evolving COVID-related OSHA requirements.

Despite the pandemic challenges, MBMA pioneered new initiatives such as our first annual architectural student design competition. With over 70 students registered, we are excited to see their creative metal building design concepts for a new elementary school.

So, are we on the doorstep of a new Roaring Twenties? Only time will tell. But MBMA members can rest assured that whatever the next decade brings, MBMA will be their partner and a solid resource supporting the success of the entire metal building industry.

ABOUT MBMA

Founded in 1956, the Metal Building Manufacturers Association (MBMA) serves manufacturers and suppliers as it works to promote the metal building systems industry. Its membership supplies high-quality buildings for use in commercial, retail, office, industrial, institutional and other end uses. The association provides a wealth of useful information on its website, MBMA.com, for anyone who works with or is interested in metal building systems. Resources include technical materials, research reports and design guides.

MBMA MANAGEMENT

MBMA has been managed by Thomas Associates, Inc. (TAI) since 1956. TAI 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.

General Manager
Tony P. Bouquot

Director of Research and Engineering
W. Lee Shoemaker, Ph.D., PE

Senior Staff Engineer
Vincent E. Sagan, PE



Nardin Academy Gymnasium and Wellness Center · Buffalo, NY



1950s



- 13 companies launch MBMA
- Straight, sidewall panels and color-coated panels used in commercial applications
- Manufacturers begin utilizing builder/dealer networks
- Technical Committee is created
- Publishes first technical manual

1970s



- Achieves \$363 million in member sales
- Association increases to 25 members, 40 plants and 3,000 dealers/builders
- Pioneers use of bolted end-plate connections in U.S.
- Introduces flat-profile metal roofs
- Factory-insulated sandwich wall panel boosts energy savings
- Delves into wind load research

1960s



- Member sales climb to \$98.9 million
- Ranks expand to 16 members, 23 plants and 1,000 dealers/builders
- Study of tapered structural members sets in motion first major research venture
- Metal building serves as example of tapered structural members
- Creation of factory-insulated wall panels and earliest UL-approved roof

1980s



- Member sales escalate to \$1 billion
- Organization swells to 35 members, 74 plants and 8,000 dealers/builders
- Circulates first trade publication Metal Building News
- Conducts research on behavior of roofing systems under gravity loads
- Publishes Metal Architecture magazine

1990s



- Member sales exceed \$1.5 billion
- Partners with Rensselaer Polytechnic Institute in research endeavors
- AISI adopts base test to predict purlin capacity in continuous span system
- OSHA teams up with steel industry coalition to upgrade manufacturing guidelines for metal decking and roofing

2010s



- Publishes *Energy Design Guide*, *Fire Resistance Design Guide* and *Guide for Inspecting Metal Building Systems*
- Issues Environmental Product Declarations for primary framing, secondary framing and wall and roof panels
- Groundbreaking educational initiative provides AISI faculty fellowships
- Invests over \$1 million for technical research programs

2000s

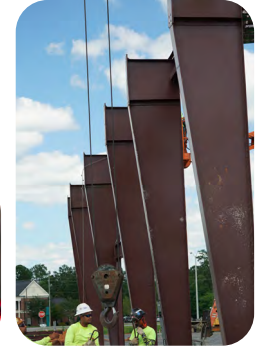


- Over \$2.9 billion in member sales
- Directs initiative to develop seismic design guide for metal buildings
- Joins with AISI at Virginia Tech to investigate bracing anchorage forces
- AC472 inspection programs for metal building systems manufacturers approved by IAS
- Energy Committee is formed

2020s



- Successfully transitions association activities to the virtual environment in the midst of a worldwide pandemic
- Partners with the University of Wisconsin on virtual reality project
- Adds Architecture Committee
- Launches MBMA educational website for architectural faculty and students
- Launches first annual student design competition



ADVANCEMENTS THROUGH RESEARCH

- Tapered Structural Members
- Cold-Formed Steel
- Bolted End-Plate Connections
- Wind Load Research
- Metal Roofing Systems
- Wind Uplift Tests
- Snow Load Research
- Bracing Anchorage Forces
- OSHA/SENAC Standards
- Purlin Anchorage
- Seismic Research
- Fire Resistance
- Air Leakage Testing
- Hail Research
- Gravity Loads

MBMA VOLUNTEERS MAKE US STRONG

Jeff Adams
Jeremy Albert
Jon Amann
Ron Ambrosius
Arne Anderson
Mike Anderson
Greg Andrews
Curtis Archibald
Steve Ashton
Roland Augspurger
Kevin Babcock
Michael Bailey
Kathryn Baker
Jacob Ball
Danette Ball
Vanessa Banks
Chandler Barden
Scott Barrett
Robin Bartlett
Chris Barton
Bill Beals
Spencer Becker
Jim Beckham
Kevin Beishline
Richard Beldyk
Ronald Bennett

Amanda Bennett
Russell Benton
Cole Bigbee
Chris Biguenet
Christopher Bingham
Brian Birch
Austin Black
Eric Blanscett
Kimberly Blanton
Tom Boal
Andrew Bonde
Mel Booker
Jorge Borghes
Bruce Bortree
Lawrence Bower
Pat Bradshaw
Marc Brower
Steve Browning
Al Busboom
Steve Butler
Mark Carlisle
Todd Carlson
Stephen Carr
Michael Casey
Jeremy Childs
Dana Christensen

Kylee Clark
Delmar J. Clark Jr.
Roy Clay
Kyle Cobbley
Dustin Cole
James Cole
Chris Conley
George Constantine
Arnold Corbin
Roger Cox
Ryan Crist
Gary Cummings
Brandon Cunningham
Steve Curry
Chris Curtis
Brad Curtis
Jodi Datema
Jessica Davlin
Nanette Dean
Paul Deffenbaugh
Gerardo DeLeon
Ozer Dereli
Mark Detwiler
Patti DeWalt
Edward Di Cesare
Dylan DiGregorio

Maria Dolz
Scott Douglas
Jon Downey
Jeff Doyle
Chad Draxler
Michael Dubayah
Craig Edwards
Greg Effland
Jason Ehlers
Chad Elliott
Keith Elliott
Josh Fairchild
Chris Falin
Shawn Farneman
Bonnie Fater
MahMoud Faytarouni
Jeff Feaster
Will Feland
Stacey Fisher
Cinthya Fonte
Terry Ford
Jim Foster
Shaunda Fowler
Ron Fox
Adam Franzluebbers
Catherine Freeman
Jason Freidenberger
Robert Fryar
Rick Fulton
Christen Funk
Pavan Gadicherla
Darin Gardner
Jerry Gaston
Kenneth Gaul
John Gelms
Mike George
Mark Gies
Mark Goble
Claudia Gomez
Matthew Gomez
Michael Gong
Danny Gonzalez
Scott Gosselin
Joel Grace

Dustin Graef
Theresa Grape
Don Green
Wayne Gregory
Jim Grimm
Larry Gumpert
Ralph Gutierrez
Chuck Haba
Dustin Haddock
Jessica Haddock
Rob Haddock
Tom Haic
Steve Haic
Rahim Hakimi
Todd Hamilton
Todd Harbour
Steve Harper
Kim Harrell
Mark Harrington
Rodney Harris
William Hart
Paula Harvey
Jerry Hatch
Eric Haugen
Matthew Haves
Amy Hawkins
Cindy Hayden
Brandon Hays
Patrick Hearne
Brad Heffelmire
Trey Herren
Mike Herrin
Ben Hicks
Alec Highnam
DJ Highnote
Trevor Hill
Ryan Hill
Brian Hills
David Hirte
Donna Hise
Bob Hodges
Frank Hogan
Nik Holley
Heather Hollis

Karl D. Houser
Mike Houston
Paul Howell
Mike Howser
Jim Hruby
Rich Huber
Leila Hurd
Jesus Ibanez
Elyse Inglese
Ryan Jackson
Jay Jacoby
Andy Jaworski
Rohena Jhensen
Tori Johnson
Mark Johnson
Dave Johnson
Beau Johnson
Jason Johnston
Brian Jones
Dean T. Jorgenson
Craig Joss
Dennis Kaczmarek
Lindsay Kasiska
Zachary Kates
Troy Kaylor
Lisa Keegan
Neil Kerr
Dan Kile
Jeff King
Daniel King
Brandon King
Keith Kirk
Lorell Kline
Craig Klingler
Joshua Knadler
Fred Koetting
Steve Kosir
Myron Kottwitz
David Koubek
Christina Kuhl
Luke Ladd
Tim Lane
Jim Lang
Todd Langelaan



Joe Lanning
 Ed Lash
 John Paul Lawrence
 Jordan Lax
 Delaina Lee
 Brad Leggett
 Carl Lewis
 Richard Ley
 Bill Li
 Rick Liberty
 Joe Lieber
 Rae Limerick
 Keith Lindemulder
 Chris Lingard
 Tim Logue
 Jaime Lopez
 Matt Lorona
 Pam Lowry
 E. B. Ludwig III
 Robert Lytle
 Steve Mabee
 Doug Maclam
 Bryon Magill
 Igor Marinovic
 Jim Marks
 Scott Martin
 Marty Martin
 Linda Mastaglio
 Eric Masterson
 Matt Matthews
 Loni McCarron
 Lonnie McCarron
 Russ McCarron
 Art McCullough
 Darren McGonigle
 Jacob McQuain
 Michael McWeeney
 Keith Medick
 Rachel Mercado
 Santiago Millan
 Duane Miller
 Charles Mills
 Nathan Mimms
 Rob Montoya

Zachary Morris
 Tanner Moy
 Tom Mukavetz
 Charles Mullaley
 Kevin Murphy
 Mike Murphy
 Kevin Murray
 Jeff Myers
 Karen Nebe
 Dale Nelson
 Rick Nelson
 Christopher Nelson
 Andy Newell
 Brian Ng
 Matthew T. Nichols
 Alfred Nkunga
 Rocky Norton
 Patricio Nungaray
 Matt Oakes
 Craig Oberg
 Tom Ogle
 David Oksnee
 Kristin Olson-Mesick
 Joe Otten
 Stephen Owen
 Mehmet Ozbey
 Jennifer Parks
 Marty Parsons
 David Pasciak
 Greg Pasley
 Ryan Peck
 Ronnie Peters
 Bob Peterson
 Carl Petrat
 David Phelps
 Greg Pirtle
 Amy Porter
 James Punzel
 Bob Quint
 Ryan Reeves
 Stanley Reid
 Stephen J. Reiners
 Kevin Reinheimer
 Robert Reyes

Chris Richards
 Charlene Riegger
 Stan Rinkol
 Hal Robbins
 Richard Roberts
 William Roberts
 Cliff Robinson
 Cody Rodden
 Michael Roeder
 Frank Rosales
 Dave Rosenberg
 Michael A. Rosenberry
 John Runkle
 Rodger A. Russ
 Robert Sabol
 Ed Sabre
 John Samaro
 Britney Savell
 Louis Scarfo
 Holly Schaubert
 Amy Schmidt
 Tim Schwartz
 Clinton Schwarz
 Jessica Scott
 Steven Sehmer
 Keith Self
 Jennifer Seppala
 Keith Shedd
 Brian Shelton
 Kendell Short
 Kevin Sieger
 Bob Siktberg
 Colton Simmons
 Barry Sims
 Scott Siverly
 Parker Slone
 Dave Smigel
 Mark Smith
 Carlie Smith
 Judson Smith
 Mike Smith
 Jeanie Smith
 Shaun Smith
 Curtis Smock

Mike Snelling
 Anthony Soares
 Scott Spalding
 Donna Spicer
 Jeff Spradley
 Joe Stager
 John Stahl
 John Stark
 Richard G. Starks Jr.
 Dirk Stauffer
 Carsten Steiner
 Joelene Stevens
 Heather Stiles
 Matt Stone
 Craig Storch
 Amanda Storer
 Roger Story
 Scott Stuhlmiller
 Jack Sturdivant
 Christopher Stutsman
 Steve Sukup
 Dan Sweeney
 Randy Tackett
 Michael Teems
 Stephanie Theis
 Tula Thompson
 Martin Thompson
 Nick Thompson
 Philip Thompson
 Vinay Thottunkal
 Robert Tiffin
 Brant Tirello
 David Tomchak
 Scott Tomlin
 Corey Tompkins
 Mike Tucker
 Charlotte Tyner
 John Underwood
 Smokey Underwood
 Mark Van Dyken
 Randy Varble
 Joel Voelkert
 Craig Wagner
 Zachary I. Walker



Carl Walker
 Fred Walnut
 Jeff Walsh
 Greg Warsop
 Craig Wastell
 Christian Watkins
 Russell Watts
 David Weatherford
 Shane Weathers
 Mark Weaver
 Randy Webb
 Teisen Webb
 Jerod Webber
 Ken Welch

Amanda Welch
 Travis Wendt
 Alexis West
 Dena Whitaker
 Chad Wieberg
 Kasi Wilburn
 Todd Wilson
 Jesse Winternitz
 Dave Woebbecke
 Jon Woehrer
 Steve Wright
 Travis Yetter
 Wes Young
 Rene Zamarripa



TANNER MOY
Committee Chair

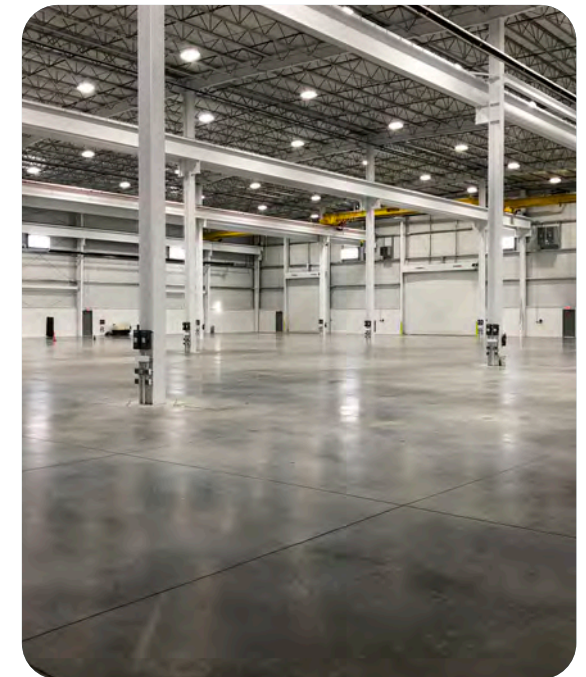


ACCREDITATION GIVES IMMEDIATE CREDIBILITY TO METAL BUILDING INDUSTRY FIRMS

MBMA's 20-person Accreditation Committee oversees all activities related to member accreditation through the International Accreditation Service (IAS). The IAS accredits the inspection programs of companies that design and fabricate engineered metal building systems. It is based on requirements in IAS Accreditation Criteria AC472, International Building Code and related standards. Accreditation criteria covers inspections of elements that are essential for designing, specifying, building or approving metal building systems. AC472 is a highly impactful quality assurance initiative that continues to set the pace for the industry. MBMA requires that all association members in the Building

Systems category attain and maintain AC472 accreditation. We recognize that it adds value for the end customer and differentiates the metal building systems industry from other forms of construction.

The COVID-19 pandemic has made it difficult this year—and last—to do our part to help IAS strengthen the accreditation process. We were finally able to have a face-to-face meeting in October, which was highly productive. One accomplishment was our partnership with IAS to develop an article, "Non-destructive testing—Building code requirements and IAS AC472 accreditation," which appeared in

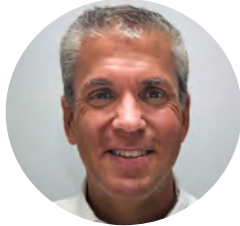


the ICC Building Safety Journal in June 2020. We also assisted in the preparation of a second Building Safety Journal article that appeared in the publication this past January: "Building officials benefit from IAS AC472 and AC478 in low-rise construction."

The IAS developed a similar certification for the contractors and erectors involved in metal building construction. IAS AC478 now offers Metal Building Assemblers Inspection Accreditation, which is for companies that perform the on-site building assembly. At the construction site, a building official can reduce redundancy when observing

a construction team whose standards and practices have been vetted through inspections already required by AC478. MBMA asks its Building Systems member firms to encourage affiliated building erectors to become accredited. We on the MBMA Accreditation Committee actively promote the benefits of both AC472 and AC478 through articles, presentations and other methods.

Henshaw, Inc. · Armada, MI



ROBERT TIFFIN
Committee Chair



A YOUNG COMMITTEE, A FRESH PERSPECTIVE & A CHALLENGE

The Architect Committee is young. We were formed in 2020, but we are already making great strides. Our most significant project is a long-term plan to influence architects' understandings of sustainability, versatility and the (almost) limitless aesthetics of metal building architecture.

We immediately started with a look to the future through the development of teaching tools to educate undergraduate and graduate architecture students. We aim to help them understand when and why metal buildings are an ideal architectural solution for many building types. This year, in coordination with the Education Committee, we developed

the concept, and next year we'll begin creating education folios on specific metal building projects.

We are also working with the Education Committee to introduce MBMA's inaugural student design competition. Full-time graduate and undergraduate students with faculty sponsors have signed up and submitted ideas for the design of an elementary school using metal building components. MBMA will be awarding \$15,000 in prizes next February.

We again partnered with the Education Committee to develop MBMA's second annual Architectural Faculty Workshop.

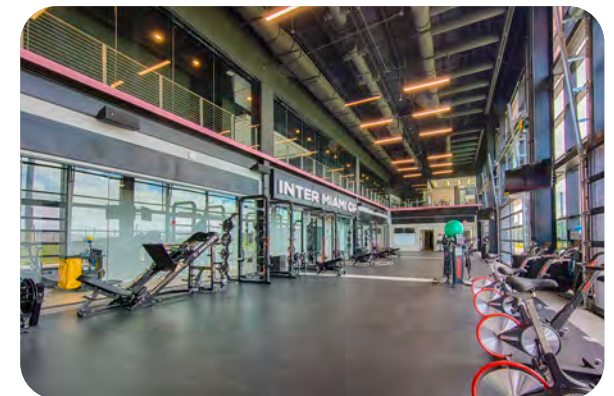


Inter Miami CF Training Facilities · Fort Lauderdale, FL

Attendees were introduced to a variety of metal building ideas from both fellow members of academia and architects in the corporate environment. Not only did they gain great knowledge, but they also received access to a wealth of free publications and resources related to metal building design.

The Architect Committee's mission is to positively impact the metal building industry through effective understanding, comprehensive education and the collaborative engagement of

architects, both at the national and local levels. To that end, I have challenged the committee to reach out to one new person every day to tell them about the architectural value of metal buildings and the quality designs that can evolve through the use of metal building materials. I will now ask, nay challenge you, to join us in this effort. Will you also reach out each day to your contacts in the design community and share with them the attributes of a metal building solution? I hope and trust you will! And I hope you'll encourage



them to come be a part of MBMA. It's a tremendous organization with a wealth of research that provides architects with more options in building design and construction.



JOHN UNDERWOOD
Committee Chair



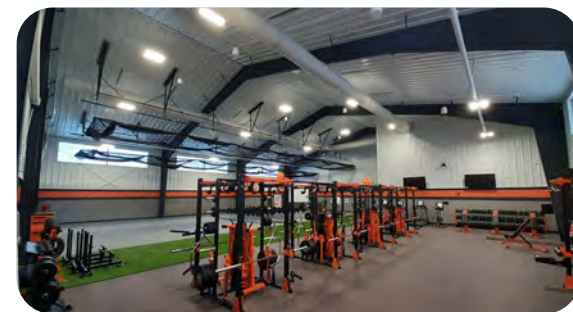
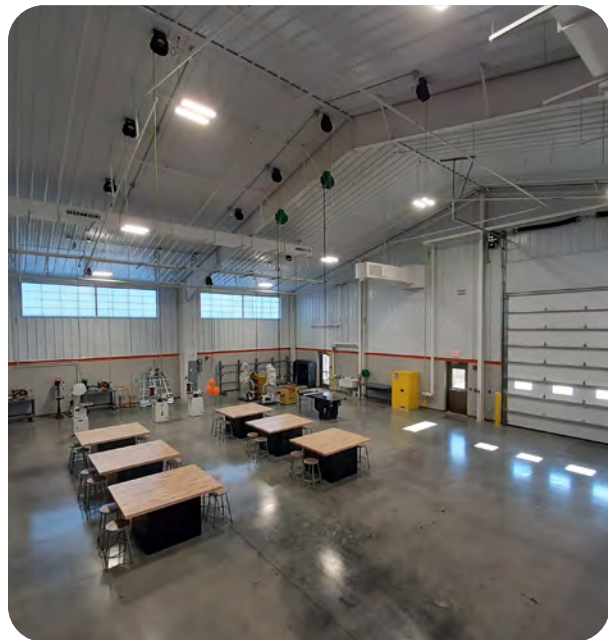
A VERY PRODUCTIVE YEAR!

What did MBMA's Education Committee accomplish in 2021? I can answer that in one word—LOTS!

We rolled out the architecture student design competition that was developed in 2020 to promote metal buildings and raise awareness among college students and faculty. We are nearing completion of our Virtual Reality Experience, a tool that lets students and faculty walk through a metal building and see all its fascinating intricacies. We're now determining the best way to distribute the software to architecture schools and to develop a plan to share it with many relevant audiences. It's very exciting technology! We also completed our second annual faculty workshop,

featuring high-profile professors such as Marci Uihlein, PE (University of Illinois' School of Architecture), Donna Kacmar, Ph. D., FAIA (Gerald D. Hines College of Architecture and Design at the University of Houston) and Greg Snyder (University of North Carolina-Charlotte's School of Architecture.) Our keynoter was from the corporate world: Taryn Kinney, AIA, the K-12 Education Leader at DLR Group, one of the largest architecture firms specializing in K-12 design. It was a terrific program.

If you know of college faculty members who could benefit from this education, please share their information with us and we'll invite them to our next workshop.



Arcanum Butler School · Arcanum, OH

In other news, we developed a new online learning course for architects with BNP Media to be placed in Architectural Record: "Specifying the Latest in Metal Buildings." This is the ninth Architectural Record course that MBMA has created and all have been extremely well-received. In 2021, the MBMA courses, "Using Metal Building Systems to Meet and Exceed the Energy Code" and "Creative Building Solutions with Pre-Painted Metal Panels," both won awards for generating the most leads over the past year, and the latter was recognized as the fastest-moving continuing education course for that same time period.

In addition, we developed AIA-approved presentations for delivery via a "lunch and learn" format to AIA chapters nationwide. We've had a very productive 2021 and are looking forward to expanding our efforts in the year to come.



GREG EFFLAND
Committee Chair



ASSURING ENERGY EFFICIENCY IN METAL BUILDINGS IS OUR TOP PRIORITY

MBMA Energy Committee members are working hard to collect energy-related data and to develop best practices that will ultimately benefit the entire metal building industry.

As we move forward with our efforts, we especially appreciate the opportunity to collaborate with other industry groups, including the Metal Building Contractors and Erectors Association, the North American Insulation Manufacturers Association and the Door & Access Systems Manufacturers Association. These partners support us in numerous ways. They help us by participating in testing, reviewing documents and

reports, co-funding research, providing expert advice, and by promoting our activities.

For example, we are continuing to perform air leakage testing that will lead to a best practices guide for designing and constructing metal buildings that meet or exceed IECC and ASHRAE energy code requirements. We tested four buildings in 2020 and four more in 2021, with plans to complete this effort in 2022. Ultimately, our research will benefit MBMA members, architects, contractors, builders and building owners.



Champion Chair · Elkhart, IN

As a result of our air leakage research, we were invited to speak to various groups across the country this year and provided a comprehensive program at METALCON, the largest international event in the metal construction industry.

We're also proud to announce that one of our educational efforts received national recognition. Our course, "Using Metal Building Systems to Meet and Exceed the Energy Code," was honored by Architectural Record magazine for generating the most leads over the last year.

The highlight of the year was our Energy and Sustainability Workshop, which took place in Dallas in November. Collaborating with MBMA's Sustainability Committee, we conduct this workshop every two years. Our primary objective is to educate attendees about recent changes in national and state energy codes and what changes are anticipated for the future.

Finally, all this important work would not get done without the diligent, behind-the-scenes efforts of the MBMA technical

staff. Their coordination and organization of our programs and research activities are invaluable, and we appreciate them very much.



ANDY JAWORSKI, PE
Committee Chair



RESEARCH ADDRESSES FIRE & HAIL CHALLENGES

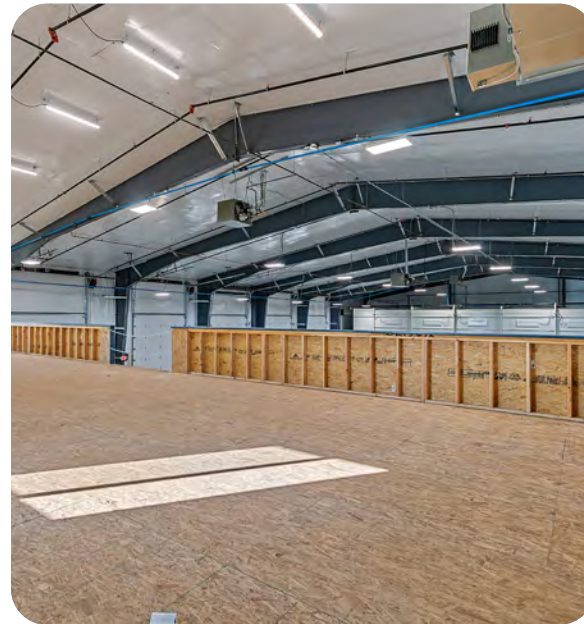
MBMA's Fire & Insurance Committee has been busy in 2021. One significant activity was performing fire and air leakage testing for a new continuity joint assembly developed last year. The assembly stops at the bottom of the purlins and doesn't enter the purlin cavity, resulting in walls that can go up after construction is done and not disturb the insulation and vapor barrier. Testing was completed in February, and we are working on documentation showing compliance with building code requirements. We've also updated existing continuity joint assemblies that were adapted for use with filled cavity insulation. You'll find the six

new enhanced UL assemblies on the MBMA website at www.mbma.com/Fire_Protection.html.

We were also pleased to be invited to participate with the Department of Civil and Systems Engineering at Johns Hopkins University on an AISI Standards Council Fellowship research project. The research pertains to Structural Design for Fire Conditions of a Prototype Metal Building using the New Proposed Appendix to AISI S100, the cold-formed steel member design specification. We have shared design calculations for various rated cold-formed, steel-framed wall assemblies with the researchers,



who are incorporating the data into their fire model and will create a report detailing how cold-formed steel members respond during a simulated fire. The AISI fire project will demonstrate the effectiveness of existing and new fire protection design methods in metal building systems to design professionals and code officials. Those participating on behalf of MBMA include MBMA Fire Protection Counsel, Nestor Iwankiw, PE, SE, PhD; MBMA Senior Staff Engineer, Vincent E. Sagan, PE; and me.



The committee is also working with Ron Dutton Consulting Services LLC on an executive summary of two recent hail research projects, documenting the effects of hail impact on the durability of GALVALUME® SSR panels, highlighting one roof that has been in service for over 40 years. We look forward to sharing this document with the insurance industry.

Universal Fleet, RV and Auto Collision, Inc. - Frederick, CO



BRIAN SHELTON
Committee Chair



MARKETING INITIATIVES MAKE KNOWLEDGE SHARING A PRIORITY

We're proud to have a robust Marketing Committee with 53 active members. We meet online regularly to update our goals and review our progress.

Our function is to be the mouthpiece for the MBMA. We create and aid in the development of resources that educate our audiences about metal building systems. Through various media channels, we target and influence architects, engineers, building owners, general contractors, erectors, code officials, developers, educators and students, as well as the general public.

In the last six years alone, we've developed 50 videos, which you can view on our YouTube channel at [www.](http://www.youtube.com/mbmamedia)

[youtube.com/mbmamedia](http://www.youtube.com/mbmamedia). The videos delve into topics such as: what it's like to work for a metal building manufacturing company; how a metal building is professionally erected; and how metal buildings are designed to withstand the forces of nature. These videos are tools that can be used by the association members.

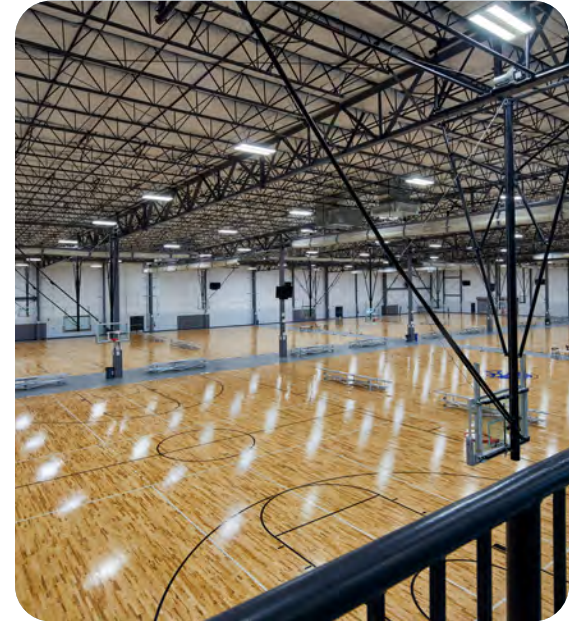
We've also completed nine industry-specific case study documents that provide examples of how metal buildings are used for different types of facilities within varied end-use applications. All are available for free download at www.mbma.com/case_studies. I would ask that our members familiarize themselves with these tools and share them prolifically.

Some of our most meaningful work comes through promoting the efforts of the Education and the Architect committees as they work to enhance their programs; and from the Fire & Insurance Committee as it updates materials, such as fire-rated assemblies and insurance bulletins. Our regular press releases make known the accomplishments that the MBMA achieves.

Social media also remains a high point of our efforts, with followers and engagements growing day by day. We

post to LinkedIn and Twitter weekly, so be sure to follow MBMA to keep current on our actions—and don't overlook our very popular blog, at www.mbma.com (just click on the blog tab).

We have developed a plan and objectives for our 2022 program and look forward to advocating and educating to further MBMA's leadership role in promoting the value of metal building systems.



Kinetic Sports Complex · Lincoln, NE



DARREN MCGONIGLE
Committee Chair



CELEBRATING SUCCESS AS MEMBER NUMBERS RISE

Steve Browning was chair of MBMA's board of directors in 2019. I give him kudos for coming up with the idea that year to create MBMA's first Membership Committee.

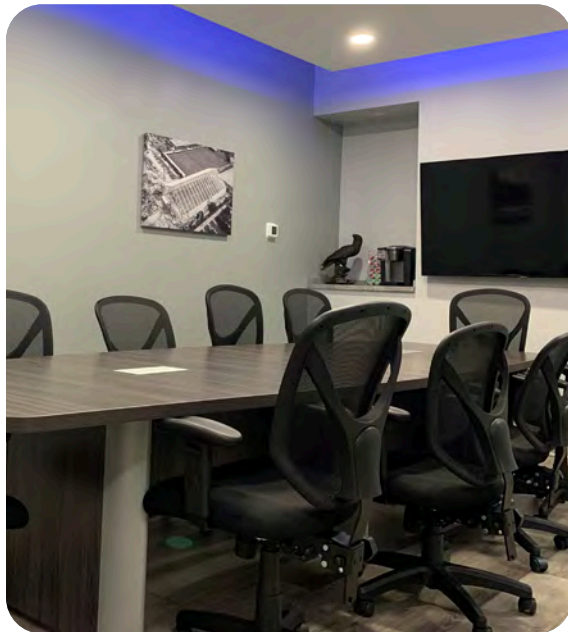
With just nine people, the fledgling committee began setting its goals this past January. We started out by determining a short list of companies that we believed would benefit exponentially from corporate participation in MBMA—companies that would most benefit from the leadership, research, education and networking opportunities that are hallmark attributes of the 65-year-old association.

Sure enough, it wasn't long before we were ticking off new members from the shortlist. This year, we've welcomed six firms to the MBMA fold. In the Building Systems member category, we hailed AGI Sentinel. In the Associates category, we added Curbs Plus, FRAMECAD, PrīmX North America, Wolverine Advanced Materials and Thornton Tomasetti.

Considering all of the COVID-induced roadblocks to in-person meetings and circumvented travel, we were thrilled to add so many new members—a record increase over recent years. None of this would have been possible without the interplay of several key factors. First, credit goes to the participants in the



Membership Committee who gave thoughtful input into updating our new member outreach materials. Secondly, we appreciate the valued shortlist recommendations offered by those serving on the MBMA board of directors. Not only did those leaders provide names and contact information, they also reached out to potential members who were in their sphere of influence and shared personal accounts of what value MBMA has brought to their firms and their employees. Finally, a big thanks goes to Tony Bouquot, general manager of MBMA, and to his staff who kept us all organized, handled prospective member meetings and provided the collateral material updates that helped us seal the deal with incoming members.



So, here's to 2022! We are energized to exceed our 2021 new member count and excited to develop an even more robust outreach effort. Any employee of an MBMA member firm is welcome to join our committee and help us increase our activities.

Canco General Contractors · Lakeland, FL



DAVID WEATHERFORD
Committee Chair



SAFETY: ALWAYS RELEVANT, ALWAYS ESSENTIAL

The MBMA Safety Committee is made up of safety professionals who work within the metal building systems industry.

Our job is to educate employees in our plants and offices so they will keep safety top of mind and do their part to ensure safety in their work spaces.

The main way that we help them is to provide safety webinars that we broadcast into their workplaces so that as many employees as possible can attend. The webinars are usually held in rooms where the employees can all come together and view the programs as a group. After they watch each webinar, we ask them to remain together and discuss

how to implement what they've learned and to adapt the lessons in their specific environments. Due to the continuation of the COVID-19 pandemic, we were only able to hold three webinars this year—but we still clearly reaped benefits.

We know that the webinar format works because employees always voice suggestions for how to improve safety after they attend the webinars. This is extremely important because each office and plant is one-of-a-kind. Each is set up differently, and each has practices and procedures and people that are unique to that location. Since no two facilities are the same, we can't dictate how to implement the best safety approach



without the commitment and buy-in of the people working right there. They need to tweak what they learn to make it most effective in their circumstances.

The MBMA Safety Committee recognizes that a company can't have a good safety program without a good safety education program—and an action plan for implementation. Any time you see a good safety culture, if you dig deep, you'll find there's a good education program at its core. So, when our Safety

Committee meets, we are focused on continually improving the educational programs we create.

We will continue to explore ideas and alternatives to keep employees and their families out of harm's way. That's our mission and our job.



Gospel City Church - Granger, IN



DONNA HISE
Committee Chair



WE'RE ALL ABOUT NUMBERS

Educating MBMA members is the very purpose of the MBMA Statistics Committee. We oversee the creation of 16 reports that share data on many facets of the state of the metal building industry. All of our reports are confidential and exclusively provided to MBMA members.

Our Quarterly County Shipment Report shows how metal building shipments are distributed among over 3,000 counties in the U.S. This allows sales leaders to measure their performance compared to the rest of the industry and to assess possible areas of opportunity.

The Annual End Use and Annual Square Footage reports show members what project types and sizes were shipped

in the previous year, giving marketing departments information that helps them build effective strategies and anticipate industry trends. The quarterly Manufacturing Productivity Report and Engineering Productivity Survey both give leaders a performance benchmark to ensure their firms are on par with the rest of the industry.

These and the many other MBMA statistics reports give leaders industry-specific knowledge that assists them in charting a course for success. There are no other sources from which to cull such specific industry data, so we are very proud to play a role in assuring that the quality and comprehensive nature of the data remain high.

The Statistics Committee is composed of both MBMA manufacturing firm members and Associate members that supply goods and services to the industry. We look at the numbers from diverse perspectives and that helps us see the data from a variety of viewpoints. We feel such diversity is very valuable in helping us achieve our mission.

One task we helped complete this year was to add Federal Information Processing Standards (FIPS) codes to county data for reports that compile sales data. FIPS, a universal code that uniquely identifies geographic areas, is incorporated into all commercial mapping software today. Providing sales FIPS to MBMA members now allows them to map exactly how much metal building sales activity is occurring in various sectors of the U.S.



St. Henry Community Center · St. Henry, OH



JOHN UNDERWOOD
Committee Chair



ENHANCEMENTS COMPLETED FOR EDP, LCI AND LCA INDUSTRY TOOLS

One of the most influential projects of the MBMA Sustainability Committee was the updating of environmental product declarations (EPDs) for three metal building product categories: primary rigid framing, secondary framing, and metal cladding for roofs and walls. They are available on the MBMA website at www.mbma.com/Environmental_Product_Declarations.html. These EPDs provide specifiers, designers and other industry professionals with transparent, third-party documentation of the environmental impacts of products used in metal building systems. These industry-average reports can be used by all MBMA members to show compliance with LEED and other high-performance

energy programs. MBMA members are dedicated to educating others about the sustainable performance of metal building systems, and these EPDs effectively do that for the design community.

MBMA's EPDs summarize the cradle-to-gate environmental impacts of a metal building system. The cradle-to-gate method is used to describe the impact of producing products—from raw material extraction, through processing, fabrication and up to the finished product leaving the manufacturing facility. Our work was completed in partnership with the Athena Sustainable Materials Institute.



American Polyfilm Warehouse · Branford, CT

The EPDs were developed as a result of our efforts to update MBMA's industrywide life cycle inventory (LCI) report, which practitioners use in their Life Cycle Assessment (LCA) software programs. Our data was compiled from information provided by MBMA's manufacturing member firms. As found in our previous LCA efforts, metal buildings ranked very favorably compared with other forms of construction. The LCA information is important because it allows us to

promote and track the continuous improvement of the environmental performance of metal building component products as technology improves over time. It also allows member companies to benchmark their plant-specific product footprint against a valid industry average. In addition, the data supports the development of derivative works, such as industry-average carbon footprint reporting and/or sector-level EPDs.



DUSTIN COLE, PE, SE
Committee Chair



TECHNICAL CHALLENGES, RESULTING SOLUTIONS: MBMA HELPS TO IMPROVE CODES AND STANDARDS

MBMA is identified as a leader in the construction industry due to its proactive involvement in codes and specifications and its efforts to educate the industry about its ongoing research results.

One significant Technical Committee contribution was our involvement in the *AISC Design Guide 4 + 16*. It is the second edition of the earlier guides 4 and 16, combining them into a single guide. Design Guide 16 addresses “Flush and Extended Multiple-Row Moment End-Plate Connections” while Design Guide 4 deals with “Extended End-Plate Moment Connections—Seismic and

Wind Applications.” These publications incorporate the findings from MBMA’s long history of research on bolted end plates and include recent developments uncovered by our research.

We are also taking a leading and proactive role in the development of *ASCE/SEI 7-22 “Minimum Design Loads and Associated Criteria for Buildings and Other Structures.”* It establishes the minimum load standards that drive building codes. MBMA’s wind load testing is critical to the completion of this document, and this is the first time that ASCE has taken a funding role in

wind load research, which has been ongoing for several years. Our efforts will help enhance the next edition of the load provisions. One highlight of the new standard is simplification to a single approach while addressing differences in wind load based on building geometry.

As part of our ongoing efforts to educate and inform various key constituents, the Technical Committee continued with online Design Seminar sessions addressing research findings and general design topics related to metal buildings. This series shares information with many individuals at MBMA member companies and has led to opportunities to speak to groups nationwide, expanding knowledge and expertise throughout academic and professional communities.

All of our efforts described above have provided excellent opportunities to educate our members and the industry on specific strengths and challenges of metal buildings and how these structures meet the needs of the construction industry and the broader public.



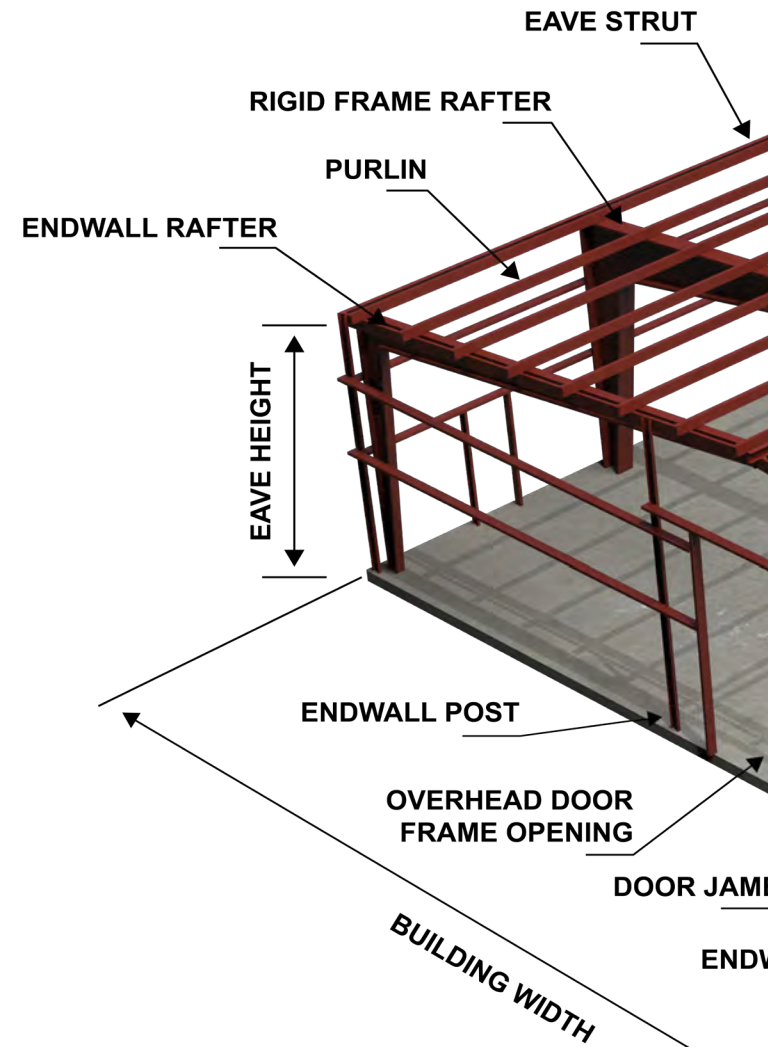
Intec · Frederick, CO

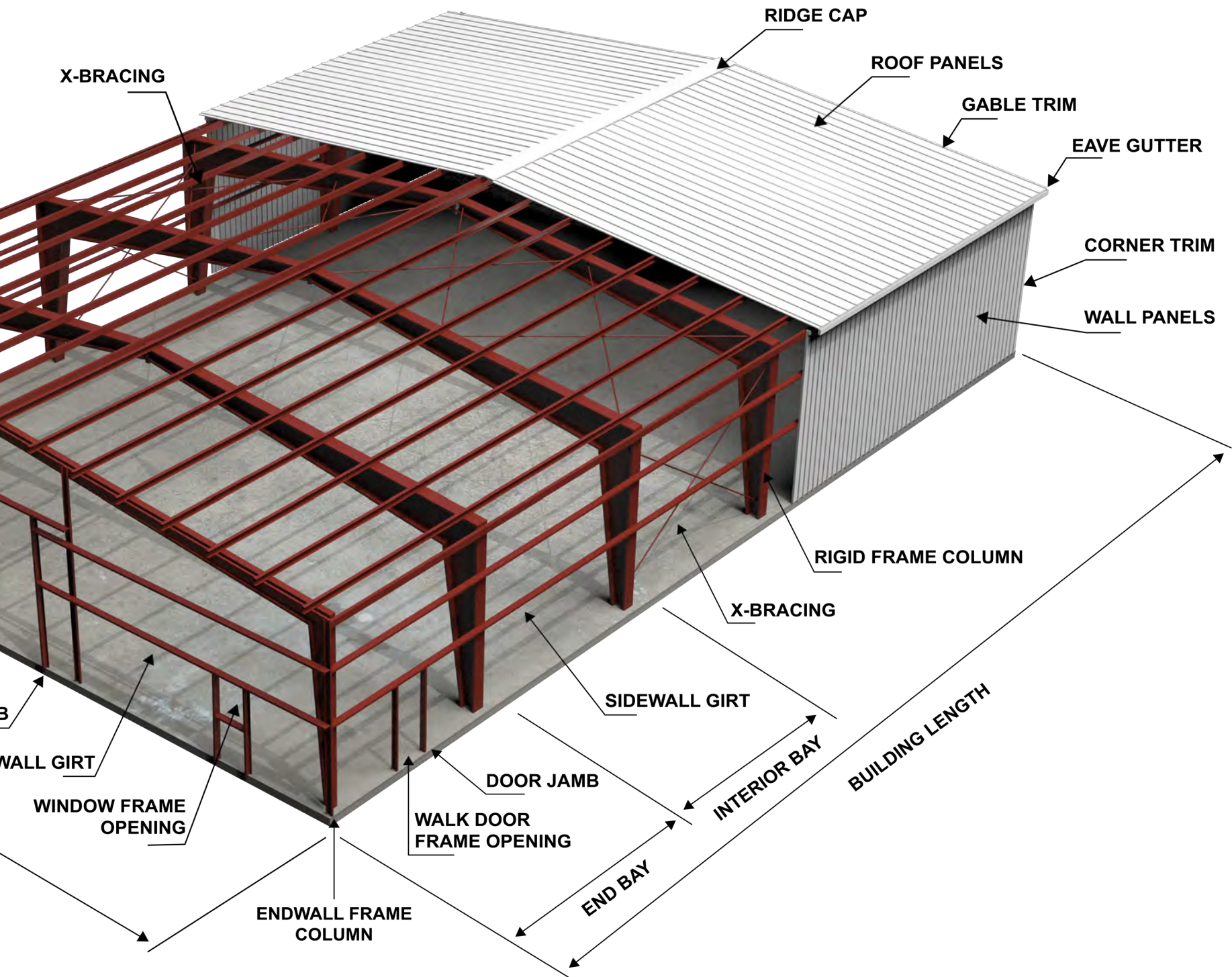
ANATOMY OF A METAL BUILDING SYSTEM

Metal building systems are interdependent assemblages of structural elements that work together to create a very efficient structural system. The basic elements of the metal building system are primary frames (structural steel members), secondary purlin and girt members (cold-formed steel and steel joists), and metal roof and wall cladding systems.

Metal building systems can span great widths and lengths with or without additional interior supports. Where very large areas are required, and interior columns are not a problem, the modular rigid frame is an ideal solution. These provide flexibility in layout and design and ease of expansion for future growth. With a roof slope of 1/4 inch to 12 inches, even a 1,000-foot building can be designed without excessive height.

One of the inherent advantages of a metal building system is the industry's ability to utilize "welded up" frames as opposed to mill sections. In this way, the engineer, using sophisticated computer programs, can design the most efficient shape for the building frame. The steel material is placed where it is needed and eliminated from where it is not, adding economy without compromising design.





EDUCATIONAL & TECHNICAL RESOURCES

TECHNICAL MANUALS & GUIDEBOOKS

Download previews and full documents or order print versions at www.techstreet.com/mbma.



2018 Metal Building Systems Manual
Metal Roofing Systems Design Manual - Second Edition
Fire Resistance Design Guide for Metal Building Systems
Energy Design Guide for Metal Building Systems - Second Edition
Seismic Design Guide for Metal Building Systems
Guide for Inspecting Metal Building Systems, Second Printing

CONTINUING EDUCATION FOR AIA CREDITS

Produced in partnership with the American Institute of Architects and Architectural Record magazine. MBMA's CEU/LU courses are extremely popular with AIA members and others in the architectural community. Each program is now available through Architectural Record's Continuing Education Center: www.architecturalrecord.com/topics/2141-architect-continuing-education.

Creative Building Solutions with Pre-painted Metal Panels
Specifying a Metal Building System
Life Cost Assessment/Sustainability of Metal Buildings
Creative Metal Building Design Alternatives

TECHNICAL & EDUCATIONAL RESOURCES

Download these free documents at www.mbma.com.

AC472 Accreditation Program
Acoustical Performance of Insulated Metal Building Roof and Wall Assemblies
Athena Impact Estimator Case Studies
Concrete Masonry Walls for Metal Building Systems
Energy Code Compliance: A Guide for Metal Building Contractors
Environmental Product Declarations: Primary Structural Steel Frame Components, Secondary Structural Steel Frame Components and Roll-Formed Metal Wall and Roof Panels
Fire Protection for Metal Buildings Fact Sheet
Insurance Bulletins (10)
Insurance Facts
MBMA Annual Reports

CASE STUDIES

Download these free documents at www.mbma.com.

Educational Campus Facilities
Government Facilities
Commercial Communities
Distilleries & Breweries
Warehouses & Storage
Retail & Wholesale
Recreation & Fitness
Vehicle Sales & Service
Roofing & Solar



POPULAR VIDEO RESOURCES

All videos are accessible at www.youtube.com/MBMAmedia

How It's Made: Metal Building Innovations Are Revolutionizing Low-Rise Commercial Construction

How It's Built: Metal Building Construction Raises the Bar for Low-Rise Commercial Structures

Metal Building Systems: Wind Loads - Longitudinal

Metal Building Systems: Wind Loads - Transverse

Metal Building Systems: Gravity Loads

Metal Building Systems: Nomenclature

AC472: Why Accreditation Matters

An Introduction to Metal Building Systems

Metal Building Systems 101

Come Build Your Future (plus 13 career option videos)

Get More with Metal: Recreation & Fitness

How Metal Buildings Compete in Today's Market (Parts 1-3)

Interview with Professor Marci S. Uihlein, University of Illinois at Urbana Champaign School of Architecture

Metal Building Systems Speed of Construction

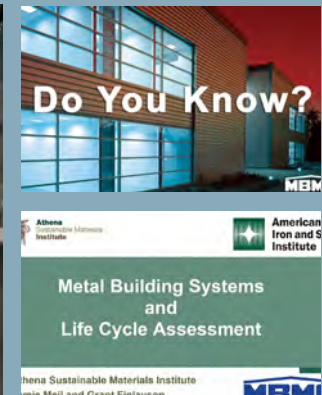
Sustainability for Metal Building Systems

What Do You Know About Metal Buildings?

Why Choose Metal Building Systems?

Why Join MBMA?

Why Metal Building Systems? with Dr. Lee Shoemaker



WEBINARS

All MBMA webinars are accessible at www.youtube.com/MBMAmedia.

Energy Code Compliance for Metal Building Systems (Parts 1-4b)

Fire-Resistance Design for Metal Building Systems (Parts 1-5)

Sustainability for Metal Building Systems

Using EPDs to Drive Value with Metal Building Systems

Metal Building Systems and Life Cycle Assessment

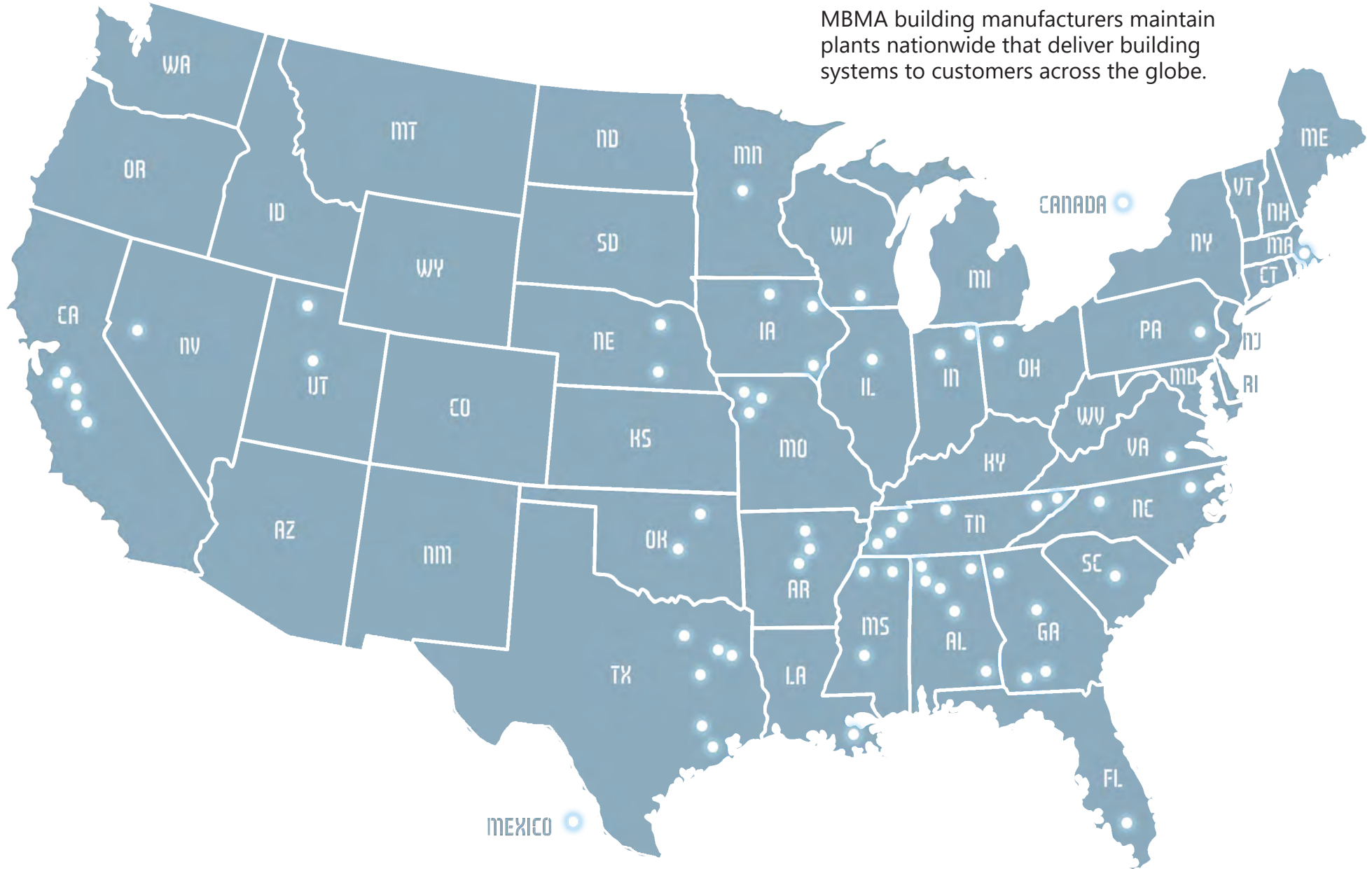
Safety in the Workplace (11-Part Series)

UL Webinar: Environmental Product Declarations

Athena Presentation: Life Cycle Assessment

MBMA MEMBERS MANUFACTURING PLANTS

MBMA building manufacturers maintain plants nationwide that deliver building systems to customers across the globe.



ALABAMA

Cullman
Eufaula
Florence
Hueytown
Muscle Shoals
Rainsville

ARKANSAS

Cabot
North Little Rock
Pine Bluff

CALIFORNIA

Atwater
Lathrop
Lockeford
Turlock
Visalia

FLORIDA

Fort Myers

GEORGIA

Adel
Cedartown
Lithia Springs
Thomasville

ILLINOIS

El Paso

INDIANA

Rensselaer
Waterloo

IOWA

Monticello
Mount Pleasant
Sheffield

LOUISIANA

Harahan

MASSACHUSETTS

Sutton

MINNESOTA

Freeport

MISSISSIPPI

Batesville
Brookhaven
Columbus
Satillo

MISSOURI

Cameron
Kansas City
St. Joseph

NEBRASKA

Albion
Columbus
Grand Island

NEVADA

Carson City

NORTH CAROLINA

Greensboro
Rocky Mount

OHIO

Kenton

OKLAHOMA

Claremore
Oklahoma City

PENNSYLVANIA

Annville

SOUTH CAROLINA

Swansea

TENNESSEE

Caryville
Elizabethton
Jackson
Lexington
Memphis
Portland

TEXAS

Athens
Hockley
Houston
Irving
Terrell
Tyler

UTAH

Brigham City
Ephraim

VIRGINIA

La Crosse

WISCONSIN

Evansville

CANADA

Ancaster

MEXICO

Monterrey



MCC Popular Hall - Fort Morgan, CO

MBMA MEMBERS

BUILDING SYSTEMS MEMBERS

ACI Building Systems
 AGI Sentinel
 Alliance Steel, Inc.
 American Buildings Company
 Associated Steel Group
 Behlen Building Systems
 Bigbee Steel Buildings
 BlueScope Buildings North America
 Butler Manufacturing
 CBC Steel Buildings
 Ceco Building Systems
 Chief Buildings
 CO Building Systems
 Cornerstone Building Brands
 Dean Steel Buildings
 Golden Giant
 Heritage Building Systems
 Inland Buildings
 Kirby Building Systems
 Ludwig Buildings Enterprises
 Metallic Building Company
 Northern Building Systems
 Nucor Building Systems
 Package Steel Systems
 Pinnacle Structures
 Red Dot Buildings
 Reed's Metals

Robertson Building Systems
 Schulte Building Systems
 Spirco Manufacturing
 Star Building Systems
 Sukup Manufacturing Company
 Trident Building Systems
 Tyler Building Systems, L.P.
 Union Corrugating Company
 Varco Pruden Buildings
 Vulcan Steel Structures
 Whirlwind Steel Buildings

ASSOCIATE MEMBERS

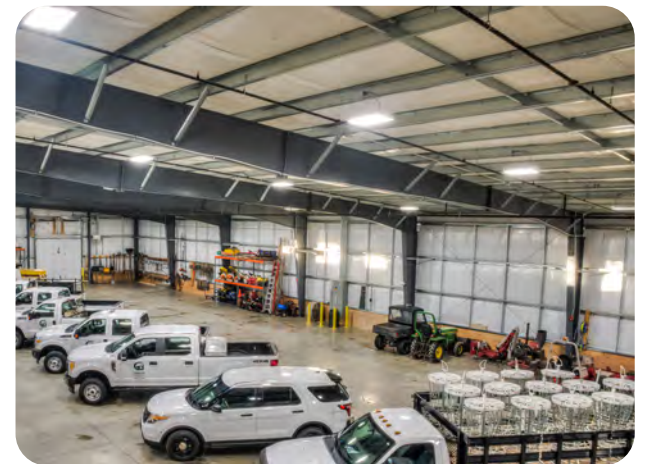
ABIS
 Akzo Nobel Coatings
 All Weather Insulated Panels
 Applied Testing & Geosciences
 Atlas Bolt & Screw Company
 Bay Insulation Company
 Benchmark Consulting & Inspection
 Birmingham Fastener
 Birmingham Rail & Locomotive
 Building Products Development
 Building Research Systems
 CADeploy
 CertainTeed Corporation
 CIDAN Machinery
 Commercial Metals Company





Crane Composites
 Curbs Plus
 Diamond Door Products
 D.I. Roof Seamers
 DuPont
 Dynamic Fastener Service
 Expi-Door Systems
 Framecad
 Glasteel/Stabilit America
 Global Building Products
 Intertek
 ITW CCNA
 ITW Polymers Sealants North America
 Konecranes
 Lamtec Corporation
 Lincoln Electric Company
 Metal Building Software
 Metallic Products Corporation
 Metl-Span
 Modern Trade Communications
 New Millennium Building Systems
 Owens Corning
 Palram Americas
 Panasonic Corporation of North America
 PDL Building Products
 PowerLift Hydraulic Doors
 PPG Industries
 Precoat Metals

Preferred Solutions
 Preformed Line Products
 Premier Steel Doors and Frames, Inc.
 PrimX North America
 Quality Roof Seamers
 Roof Hugger
 S-5! Attachment Solutions
 Sealed "N" Safe
 Service Partners
 SFS intec
 Sherwin-Williams Company
 Silvercote
 Steel Dynamics
 Tell Manufacturing
 Telling Industries
 Therm-All
 Thornton Tomasetti
 TopHat Framing Systems
 Triangle Fastener Corporation
 United States Steel Corporation
 Wolverine Advanced Materials
 Wurth House of Threads



Grandview Heights Municipal Service Building · Grandview Heights, OH



Endovac Animal Health · Columbia, MO



Prairie Kids Club · Sun Prairie, WI



Family Ford · Enfield, CT



Elburn & Countryside Fire Protection District Station 3
Elburn, IL



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