1st Edition

Guide for Inspecting Metal Building Systems

1300 Sumner Avenue
Cleveland, Ohio 44115

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Scope of Publication

The MBMA Guide for Inspecting Metal Building Systems is a guide intended for use by individuals who are responsible for contracting, performing, and reporting the various inspection tasks related to the construction of a metal building project. These individuals may be representatives of the owner, design professional, general contractor, erector, or building officials. Depending on the project and jurisdiction, there may be building code and contractually required inspections, as well as other optional inspections such as owner acceptance and insurance evaluation. This Guide should provide a useful resource for when inspecting a metal building project.

The scope of this Guide will primarily focus on inspecting newly constructed metal building systems. This includes the primary framing, secondary framing, and metal roof and wall cladding. Additional materials commonly included on the building envelope, such as windows, doors, skylights, and insulation materials, are briefly addressed in this Guide.

This Guide does not address the erection of a metal building framing system, nor does this resource provide guidance on how to inspect for lighting and mechanical systems. Furthermore, inspecting soil conditions, foundation work, and veneers other than metal roof and wall cladding is beyond the scope of this Guide. Due to the widely variable conditions encountered when modifying existing buildings, a thorough discussion of inspection procedures for existing buildings is beyond the scope of this Guide.

The applicable standards and codes that may be referred to by this Guide are numerous and they will be identified and discussed in the appropriate chapters, however, two essential documents form the basis of this Guide as noted below:


The 2015 *International Building Code* (IBC) has been published; however, this Guide is based on the 2012 IBC, since it is the primary reference document to the 2012 edition of the *Metal Building Systems Manual*. Topics presented in this Guide are common to other editions of the IBC, and the user should be able to adapt the content of the discussion to situations where the provisions of other editions apply. However, it is the responsibility of the reader to determine which Code applies to any given project.

The *Metal Building Systems Manual*, referred to henceforth as the MBSM, contains two chapters which are applicable to this Guide. They are Chapter IV Common Industry Practices, and Chapter V Performance Guide Specifications, and these will be referred to by their chapter title. These chapters provide common understandings of the role and responsibilities of the metal building manufacturer with respect to the purchaser, and the other involved parties, such as architects, engineers, and contractors (general and other). Contractual documents for any project can supersede these documents.
The use of this Guide is totally voluntary. Each building manufacturer or designer retains the prerogative to choose their own design, commercial practices, and the responsibility to design its building systems to comply with applicable codes, specifications and approved construction documents.

Although every effort has been made to present accurate and sound engineering information, the responsibility for an individual project rests with the design professional and contract parties. MBMA assumes no responsibility whatsoever for the application of this information to the design or construction of any specific building system.

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Abbreviations and Acronyms

ACI  American Concrete Institute
AHJ  Authority Having Jurisdiction
AISC American Institute of Steel Construction
AISI American Iron and Steel Institute
ANSI American National Standards Institute
ASHRAE American Society of Heating, Refrigerating and Air-conditioning Engineers
ASTM American Society for Testing and Materials
AWS American Welding Society
EIFS Exterior insulation finishing system
HVAC Heating, Ventilation and Air-Conditioning
IAS International Accreditation Service
IBC International Building Code
ICC International Code Council
IECC International Energy Conservation Code
MBMA Metal Building Manufacturers Association
MBS Metal Building Systems
MBSM Metal Building Systems Manual
MCA Metal Construction Association
NAIMA North American Insulation Manufacturers Association
NCMA National Concrete Masonry Association
NFRC National Fenestration Rating Council
OSHA Occupational Safety & Health Administration
QA Quality Assurance
QAI Quality Assurance Inspector
QC Quality Control
QCI Quality Control Inspector
RCSC Research Council on Structural Connections
SJI Steel Joist Institute
SSPC The Society for Protective Coatings
SSR Standing Seam Roof
TFR Through Fastened Roof
GUIDE FOR INSPECTING METAL BUILDING SYSTEMS
Chapter 1  Introduction

1.1 What is a Metal Building System?

Metal building systems are a popular choice for many low-rise commercial, industrial, assembly, and institutional applications. In today's marketplace, metal building systems make up more than 50 percent of the low-rise, non-residential building market and provide a cost-effective solution for many owners and occupants. Metal building systems commonly consist of web-tapered structural steel frames, secondary members that are cold-formed steel or steel joists, a metal panel roof system, and exterior wall cladding. The structural steel frames are also known as primary rigid framing that includes both the columns and the rafters. The metal building system components and assemblies are manufactured in a manner that permits plant and/or field inspection prior to assembly or erection.

Metal buildings are extremely versatile and can incorporate many different architectural finishes to provide the aesthetics required for applications such as churches, schools, shopping centers, office buildings, etc. Additional items are incorporated into the metal building envelope, such as windows, doors and insulation, and may be finished with common interior materials. In all of these applications, metal building systems still have significant cost advantages over many other building types, in part due to the speed of construction.

As Figure 1.1-1 below illustrates, a metal building system is an assembly of engineered components that act as a system to resist gravity and environmental loads, and to protect the occupants and contents from the elements.

![Figure 1.1-1: Common Parts of a Metal Building System](image-url)