

SECTION 05 59 10

METAL ROOF FRAMES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. Section Includes: Furnish and install adjustable Metal Roof Frames as shown on the Drawings and as specified herein.

1.3 REFERENCES

- A. Except where provisions of these Specifications are more exacting, comply with applicable provisions of the following standards:
 1. Standard Specifications for the Design and Fabrication of Structural Steel for Buildings, of the American Institute of Steel Construction (AISC).
 2. Code of Standard Practice for Steel Buildings and Bridges, of AISC.
 3. ASTM A653 / A653M - 11 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

1.4 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal framing capable of withstanding design loads within limits and under conditions indicated.
 1. Design Loads: As indicated on the Drawings.
 2. Deflection Limits: No more than 1/360th of the span maximum deflection in either plane, when maximum loading conditions are applied.
 3. Comply with AISI's "Specification for the Design of Cold-Formed Steel structural Members" or "Load and Resistance Factor Design Specification for Cold-Formed Steel Structural Members: for calculating structural characteristics.

1.5 SUBMITTALS

- A. Submittals requirements are specified in Section 01 3300, Submittal Procedures.
- B. Product Data: Submit all pertinent manufacturers' published data indicating materials, strengths, finishes and sizes. Sufficient engineering information shall be provided to verify reaction forces.
- C. Shop Drawings: Provide layout and typical connection details for each type of installation condition.
- D. Engineering and Analysis
 1. For unusual or exceptional design loads, include structural analysis data signed and sealed by a qualified professional engineer who is licensed to practice within the jurisdiction of the Work.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver packaged materials to site in manufacturer's original unopened containers with labels intact.
- B. Adequately store under cover and protect against damage while stored at the site.

1.7 QUALITY ASSURANCE

- A. Installer qualifications: An experienced installer who has completed work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Fabricator Qualifications: A firm experience in producing metal roof frames and with a record of successful in-service performance, as well as sufficient production capacity to engineer and produce the required units.
- C. Source Limitations: All Metal Roof Frame components must be supplied by a single manufacturer.
- D. Preinstallation Conference: Conduct conference at project site with Architect, Owner framing erector, mechanical contractor and all related trades whose work shall attach to or be affected by support system.

1.8 PROJECT/SITE CONDITIONS

- A. Field Measurements: Verify dimensions by taking field measurements to assure proper fit and attachment of items.

PART 2 PRODUCTS

2.1 METAL ROOF FRAMES

- A. Manufacturers: Subject to compliance with requirements, provide metal roof frame system(s) by one of the following:
 - 1. QuickFrames USA, LLC, Mesa, AZ 480-464-1500
 - 2. Other approved manufacturers

2.2 MATERIALS

- A. Steel rails and cross rails: 16, 12, or 10 gauge G-90 galvanized steel cold-formed channel sections. Steel strength may vary by application but will be no less than 30 KSI.
- B. Angle brackets: 10 or 12 gauge G-90 galvanized steel.
- C. Joist hanger: 3/16" A36, HR steel plate with powder coating.
- D. Hardware: Grade 5 zinc coated fasteners as required.

2.2 FABRICATION

- A. Standard commercial products, conforming to requirements of Drawings and Specifications may be used subject to approval of Architect. Bolt with proper size bolts. Screws and bolts shall be standard and washers provided where necessary.
- B. Execute Work using skilled metal workers only. Use only certified welders. Do only such Work at the site as cannot reasonably be performed in the shop. Make cuts, bends, punching and drilling accurate, neat and properly located. Grind and file smooth parts exposed to view; leave exposed surfaces free of fabrication marks. Make members true to length to allow assembly without fillers.
- C. When possible, fit and shop assemble, ready for erection, with shop and field connections riveted, welded or attached with screws, counter-sunk and finished flush where exposed.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine framing members to receive Work and report in writing any detrimental conditions. Commencement of Work will be construed as acceptance of existing conditions.
 - 1. Verify, before proceeding with this Work, that required inspections by AHJ of framing and/or decking have been completed.
 - 2. Verify opening dimensions and orientation of openings with related trades prior to installation of materials.
 - 3. Coordinate with other work that affects, connects with, or will be concealed by this Work.

3.2 INSTALLATION

- A. Install main rails accurately fitted, free from distortion and securely anchored to building framing utilizing the appropriate angles brackets and hangers for the framing type.
- B. Install cross rails between main rails and ensure opening is square and in compliance with clear opening dimensions.
- C. Tighten all nuts to the required torque values.
- D. Install work in accordance with shop drawings and in strict accordance with manufacturer's printed instructions.

3.3 CLEANING

- A. During the course of the Work and on completion of the Work, remove excess materials and debris and dispose of away from premises. Leave Work in clean condition in accordance with Section 01 5000, Temporary Facilities and Controls.

END OF SECTION 05 59 10