

## **DIVISION 5 - METALS**

054000 COLD-FORMED METAL FRAMING

## **SECTION 054000 - COLD-FORMED METAL FRAMING**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

A. Section Includes:

1. Load-bearing retrofit roof framing.
2. Miscellaneous framing members and accessories.

#### **1.2 SUBMITTALS**

- A. Product Data: For each type of cold-formed steel framing product and accessory.
- B. Design Calculations: Verify specified sizes, gauges, spacing of members and connections to meet design criteria and manufacturer's requirements for supported materials. Show methods and practices used in installation.

#### **1.3 QUALITY ASSURANCE**

- A. Product Tests: Mill certificates or data from a qualified independent testing agency.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Basis-of-Design: Subject to compliance with requirements, provide retrofit roof framing components consisting of cees, zeos, channel tracks, hat channels and other miscellaneous shapes shown on the Structural Drawings, as manufactured by McElroy Metal, 1500 Hamilton Rd., Bossier City, LA 71113, or comparable products by a prior approved manufacturer.

#### **2.2 PERFORMANCE REQUIREMENTS**

- A. AISI Specifications and Standards: Unless more stringent requirements are indicated, comply with AISI S100 and AISI S200.

#### **2.3 LOAD-BEARING RETROFIT ROOF FRAMING**

- A. Steel Framing: Manufacturer's shop-primed shapes as indicated on the Structural Drawings as follows:
1. Cee Columns: C4 x 4 x 16 gauge, or as indicated.
  2. Track: 4 inches, U-shaped x length as indicated.

3. Rafters: C6 x 2½ x 16 gauge, or as indicated.
4. Horizontal and Diagonal Bracing: C4 x 2½ x 16 gauge, or as indicated.
5. X-Bracing: L3 x 3 x 16 gauge, or as indicated.
6. Purlins and Girts: Z4 x 2½ x 16 gauge, or as indicated.
7. Eave Strut: C4 x 4 x 16 gauge, or as indicated.

## 2.4 MISCELLANEOUS FRAMING MEMBERS

- A. General: Of 18 gauge galvanized steel, ASTM A446, Grade D, G60 minimum.
- B. Framing and Furring Members: Provide miscellaneous shaped framing members in the sizes and configurations indicated (includes but is not necessarily limited to):
  1. Hat-shaped furring channels as detailed, 1½ x 18 gauge, galvanized finish.
  2. Miscellaneous bent angles, shapes and plates, gauge as indicated, galvanized finish.

## 2.5 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.
- B. Provide accessories of manufacturer's standard thickness and configuration.

## 2.6 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
- B. Anchor Bolts: ASTM F 1554, Grade 36, threaded carbon-steel hex-headed bolts and carbon-steel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C, or mechanically deposition according to ASTM B 695, Class 50.
- C. Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing per ASTM E 488 conducted by a qualified testing agency.
- D. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E 1190 conducted by a qualified testing agency.
- E. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.
  1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.

## 2.7 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: [SSPC-Paint 20 or MIL-P-21035B] [ASTM A 780].

- B. Shims: Load bearing, high-density multimonomer plastic, and nonleaching; or of cold-formed steel of same grade and coating as framing members supported by shims.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Install load bearing shims or grout between the underside of load-bearing wall bottom track and the top of foundation wall or slab at locations with a gap larger than 1/4 inch to ensure a uniform bearing surface on supporting concrete or masonry construction.
- B. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

#### **3.2 INSTALLATION, GENERAL**

- A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.
- B. Install cold-formed steel framing according to AISI S200 and to manufacturer's written instructions unless more stringent requirements are indicated.
- C. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.
- D. Install framing members in one-piece lengths.
- E. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- F. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.
- G. Install insulation, specified in Section 072100 "Thermal Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
- H. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.
- I. Erection Tolerances: Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
  - 1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.3 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

*END OF SECTION 054000*