
SECTION 05 50 00

METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Provide stock and custom fabricated metal items scheduled at end of this Section, complete in respect to function as intended.
 - 1. Metal fabrications includes items made from iron and steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or metal systems specified elsewhere.
- B. Related Sections:
 - 1. Section 05 51 00: Metal stairs and stair railings.
 - 2. Section 05 70 00: Decorative metal shade structure, canopy, gates, and screens.
 - 3. Section 05 73 00: Decorative aluminum deck railings with perforated panels.

1.2 REFERENCES

- A. American Welding Society (AWS): D1.1, Structural Welding Code.
- B. National Association of Architectural Metal Manufacturers (NAAMM): Pipe Rail Manual.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate steel support system for decorative screens with Section 05 70 00 – Decorative Metal.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's literature for products used in metal fabrications, including paint, grout and manufactured items.
- B. Shop Drawings: Submit for fabrication and erection of metal fabrications. Indicate profiles, sizes, connection, reinforcing and anchorage.
 - 1. Provide templates for anchorage installation by others.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. System Description: Provide stock and custom fabricated metal items.
- B. Steel Shapes, Plates and Bars: ASTM A36.

- C. Structural Steel Sheet: Hot rolled, ASTM A1011; or cold rolled, ASTM A1008, Class 1; of grade required for design loading.
- D. Steel Pipe: ASTM A53, Type S seamless, grade as selected by fabricator and as required for design loading; minimum standard weight, STD or Schedule 40.
- E. Steel Tubing: Cold formed ASTM A500; or hot rolled, ASTM A501; minimum Grade B; seamless where exposed.
- F. Castings: Gray iron, ASTM A48, Class 30; malleable iron, ASTM A47.
- G. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron ASTM A47, or cast steel ASTM A27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A153.
- H. Grout: Non-shrink meeting ASTM C1107, non-metallic, pre-mixed, factory-packaged, non-staining, non-corrosive; type specifically recommended by manufacturer as applicable to job condition.
- I. Fasteners and Rough Hardware: Type required for specific usage; provide zinc-coated fasteners for exterior use or where built into exterior walls.
- J. Welding Materials: AWS D1.1, type required for materials being welded.
- K. Paint: Provide primers as recommended by paint manufacturers for substrates and paints specified in Section 09 90 00 – Painting and Coating.
 - 1. Galvanizing Repair Paint: High zinc-dust content paint for regalvanizing welds in galvanized steel.

2.2 FABRICATION

- A. Fabricate items with joints neatly fitted and properly secured.
- B. Grind exposed welds continuous, smooth and flush with adjacent finished surfaces, and ease exposed edges to approximate 1/32" uniform radius.
- C. Exposed Mechanical Fastenings: Flush countersunk fasteners unobtrusively located, consistent with design of structure.
- D. Fit and shop assemble in largest practical sections for delivery.
- E. Make exposed joints flush butt type, hairline joints where mechanically fastened.
 - 1. Fabricate joints exposed to weather in manner to exclude water or provide weep holes where water could accumulate.
- F. Supply components required for proper anchorage of metal fabrications; fabricate anchorage and related components of same material and finish as metal fabrication.

- G. Ladders: Comply with requirements of ANSI A14.3 and Cal/OSHA; Contractor option steel or aluminum.
 - 1. Rungs: Fit in centerline of side rails, plug weld and grind smooth on outer rail faces; provide non-slip surface on top of rung, similar to epoxy resin and aluminum oxide granules surface.
- H. Elevator Shaft Screens: ASTM A392, Class II, wire mesh screens with minimum 11 gage steel wire woven into 3/4" mesh, and minimum 16 gage channel frames with top and bottom bars.
 - 1. Comply with California Code of Regulations, Title 24, Part 8, Elevator Safety Code requirements for screens in elevator shafts.
- I. Steel Bollards: Minimum Schedule 80 seamless steel piping, filled with minimum 2000 psi concrete.
 - 1. Removable Bollards: As indicated; provide steel piping without concrete fill, fitted with hasp and eye to allow for Owner furnished padlocks to prevent unauthorized removal; cap top end of pipe with flush, welded end cap; bottom open.
- J. Steel Supports for Decorative Screens: Provide steel support system for decorative screens as indicated and as required for coordination with decorative screens in Section 05 70 00 – Decorative Metal.
- K. Pre-Engineered Support Systems: Provide manufactured pre-engineered support system consisting of channel supports with anchors, attachments, and accessories as required for complete installation. Sizes to support anticipated loads.
 - 1. Manufacturers:
 - a. Unistrut Inc./Unistrut.
 - b. Grinnell Corp./PowerStrut.
 - c. Thomas & Betts, Inc./Superstrut.
 - d. Substitutions: Refer to Section 01 25 00.
 - 2. Finish: Manufacturer's standard prime paint finish for channel supports; galvanized or similar plated anchors and fasteners; hot dip galvanized where at exterior and exterior exposed applications.
- L. Finishes: Galvanize and prime paint exterior work and prime paint interior work unless otherwise noted in Schedule; comply with requirements of Section 09 90 00 - Painting and Coating for preparation and priming.
 - 1. Thoroughly clean surfaces of rust, scale, grease and foreign matter prior to applying finish.
 - 2. Do not shop prime surfaces in contact with concrete or requiring field welding; shop prime in one coat.
 - 3. Galvanized Coating: Provide coating comparable to ASTM A924 and A653, minimum G90 hot dip galvanized coating.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible; do not delay job progress; allow for trimming and fitting where necessary.

3.2 ERECTION

- A. Obtain Architect's review prior to site cutting or making adjustments which are not part of scheduled work.
 - 1. Perform necessary cutting and altering for installation and coordination with other work.
- B. Install items square and level, accurately fitted and free from distortion or defects detrimental to appearance or performance.
 - 1. Supply items required to be cast into or embedded in other materials to appropriate trades.
 - 2. Ensure alignment with adjacent construction; coordinate with related work to ensure no interruption in installation.
- C. Make provision for erection stresses by temporary bracing; keep work in alignment.
- D. Field bolt and weld to match standard of shop bolting and welding; hide bolts and screws whenever possible, where not hidden, use flush countersunk fastenings.
 - 1. Perform field welding in accordance with AWS D1.1.
- E. After installation, touch-up field welds and scratched and damaged surfaces; use primer consistent with shop coat or recommended for galvanized surfaces, as applicable.
- F. Replace items damaged in course of installation and construction.

3.3 SCHEDULE

- A. Supply and install metal fabrications listed in Schedule, complete with anchorage and attachments necessary for installation.
 - 1. Schedule lists principal items only, refer to Drawings for items not listed.
- B. Schedule:
 - 1. Miscellaneous angles, plates and attachments to be set in concrete or masonry for anchorage of other items.

2. Iron and steel shapes, sleeves, anchors, connectors and fastenings required to complete construction work, and which are not provided in other Specification sections.
 - a. Rough hardware, including bolts, fabricated plates, anchors, hangers, dowels and miscellaneous metals.
 - b. Angle and channel frames for doors and wall openings.
 - c. Beams of structural shapes, not supported by structural steel.
 - d. Elevator sill support angles, hoistway divider beams, and metal fabrications sized on Architectural Drawings not typically provided as part of structural work.
3. Ladders.
4. Elevator shaft screens.
5. Steel bollards.
6. Steel supports for decorative screens.
7. Pre-engineered support systems.

END OF SECTION