

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes shop fabricated metal items.
- B. Related Sections:
 - 1. Section 08333 - Side Folding Security Grilles

1.2 REFERENCES

- A. American Society for Testing and Materials:
 - 1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
 - 2. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - 3. ASTM A153/A153M Standard Specifications for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 4. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
 - 5. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
 - 6. ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 - 7. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
- B. American Welding Society:
 - 1. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.
 - 2. AWS D1.1 - Structural Welding Code - Steel.
- C. SSPC: The Society for Protective Coatings:
 - 1. SSPC - Steel Structures Painting Manual.
 - 2. SSPC SP 1 - Solvent Cleaning.
 - 3. SSPC SP 10 - Near-White Blast Cleaning.
 - 4. SSPC SP Paint 15 - Steel Joist Shop Paint.
 - 5. SSPC Paint 20 - Zinc-Rich Primers (Type I - Inorganic and Type II - Organic).
- D. AISC - American Institute of Steel Construction:
 - 1. Specifications for Structural Steel Buildings, Code of Standard Practice.

1.3 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Submittal requirements.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.
- C. Welder Certificates: Certify welders employed on the Work, verifying AWS qualification within previous 12 months.

1.4 QUALIFICATIONS

- A. Fabricator: Company specializing in performing work of this section with a minimum of 5 years documented experience.

- B. Welders: Shall be currently AWS certified.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: Product storage and handling requirements.
- B. Accept metal fabrications on site in labeled shipments. Inspect for damage.
- C. Protect metal fabrications from damage by exposure to weather.

1.6 FIELD MEASUREMENTS

- A. Verify field measurements are as indicated on shop drawings.

PART 2 PRODUCTS

2.1 MATERIALS - STEEL

- A. Steel Sections: ASTM A36/A36M.
- B. Steel Tubing: ASTM A500, Grade B. Seamless.
- C. Plates: ASTM A283/A283M.
- D. Pipe: ASTM A53, Grade B, Schedule 40.
- E. Bolts, Nuts, and Washers: ASTM A325 galvanized to ASTM A153/A153M for galvanized components.
- F. Welding Materials: AWS D1.1; type required for materials being welded.
- G. Shop and Touch-Up Primer: SSPC Paint 15, Type 1, red oxide.

2.2 COMPONENTS

- A. Following is list of principal items only. Refer to Drawings for items not specifically scheduled.
- B. HANDRAILS AND GUARDRAILS:
 - 1. Pipe: Steel, 1-1/2 inch o.d., wall thickness 0.125 inches, galvanized to ASTM A123, flush welded construction.
 - 2. Rails and Posts: 1-1/4 inch I.D. pipe with welded joints.
 - 3. Fittings: Elbows, tee-shapes and closures, steel, flush connections, concealed steel spigot splice connectors. R & B Wagner, J.G. Braun or approved equal.
 - 4. Exposed Fasteners: Countersunk screws or bolts, consistent with flush design.
 - 5. Finish: Unless otherwise noted, shop prime SSPC Paint 20.
 - 6. Handrail Brackets: J.G. Braun Co. No. 4548 cast malleable iron with concealed fasteners or approved equal. Same finish as railing.
- C. COUNTER SUPPORTS: Steel tubing, sizes as shown, all welded design. Countersink fasteners flush. Shop prime.
- D. MISCELLANEOUS ANGLES, LINTELS, SUPPORTS, HANGARS, SLEEVES, INSERTS, ANCHORS, AND CONNECTIONS: Sizes and shapes as detailed or noted.

2.3 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by intermittent welds and plastic filler. Continuous welds.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of the same material and finish as fabrication, except where specifically noted otherwise.
- G. Fabricate handrails to be powder coated in lengths acceptable to finish applicator. Butt sections flush.

2.4 FACTORY APPLIED FINISHES - STEEL

- A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- B. Do not prime surfaces in direct contact with concrete or where field welding is required.
- C. Prime paint items with one coat except where galvanizing or powder coating is specified.

2.5 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.
- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation from Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Verify field conditions are acceptable and are ready to receive Work.

3.2 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply steel items required to be cast into concrete or embedded in masonry with setting templates to appropriate sections.

3.3 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from deterioration or defects.
- B. Make provisions for erection stresses. Install temporary bracing to maintain alignment, until permanent bracing and attachments are installed.
- C. Field weld components indicated in Drawings.
- D. Perform field welding in accordance with AWS D1.1.
- E. Obtain approval of Architect prior to site cutting or making adjustments not scheduled.
- F. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

3.4 ERECTION TOLERANCES

- A. Section 01400 - Quality Requirements: Tolerances
- B. Maximum Variation from Plumb: 1/4 inch for every 12 feet in height.
- C. Maximum Offset from Alignment: 1/4 inch.
- D. Maximum Out-of-Position: 1/4 inch.

END OF SECTION