

## Part 1 GENERAL

### 1.1 SECTION INCLUDES

- A. This Section specifies factory-applied metal coatings including the following:
  - 1. The basis of design is **Duragalv®** - Hot-dip galvanizing for iron and steel fabrications.

### 1.2 RELATED SECTION

- A. Examine Contract Documents for requirements that affect Work of this Section. Other Specification Sections that directly relate to Work of this Section include, but are not limited to:
  - 1. Section 033000 - Cast-In-Place Concrete.
  - 2. Section 042000 - Unit Masonry.
  - 3. Section 051200 - Structural Steel Framing.
  - 4. Section 053000 - Metal Decking.
  - 5. Section 055000 - Metal Fabrications.
  - 6. Section 055100 - Metal Stairs.
  - 7. Section 055200 - Metal Railings.
  - 8. Section 057000 - Decorative Metal.
  - 9. Section 077100 - Roof Specialties.
  - 10. Section 107000 - Exterior Specialties.
  - 11. Section 107500 – Flagpoles.
  - 12. Section 129300 - Site Furnishings.
  - 13. Section 323000 - Site Improvements.
  - 14. Section 323100 - Fences and Gates.

### 1.3 SUBMITTALS

- A. **Product Literature for Factory-Applied Metal Coatings:** Submit galvanizer's product data sheets for coatings specified in this Section including physical performance test data.
- B. **Certificate of Compliance for Items Coated by Galvanizer:** Submit notarized Certificate of Compliance, signed by the galvanizer, indicating compliance with requirements of specifications.
- C. **Substitutions:** Substitutions must be submitted with performance criteria that meet or exceed the requirements of this specification.
- D. **Certification from the American Galvanizers Association** that Galvanizer has a certified Master Galvanizer on staff.
- E. **Certificate of Compliance for Shop Application:** The galvanizer/appliator shall be SSPC-QP3 certified.

### 1.4 QUALITY ASSURANCE

- A. **Galvanizer's Qualifications:** Galvanizer must have a minimum of ten years of experience in hot-dip galvanizing using the dry kettle process and the application of the coatings required in this specification. The coating application must be performed in the same facility as the galvanizing.

- B. **Coordination between Fabricator and Galvanizer:** The galvanizer shall review fabricator's shop drawings for suitability of materials for galvanizing and coatings and will notify the fabricator of any required modifications.

## PART 2 PRODUCTS

### 2.1 SECTION INCLUDES

- A. **Hot-Dip Galvanizing:** For steel exposed to the elements, weather or corrosive environments and other steel indicated to be galvanized, provide coating for iron and steel fabrications applied by the hot-dip process. Galvanizing bath shall contain special high-grade zinc.
1. Basis of design: **Duragalv®**
  2. Comply with ASTM A 123 for fabricated products and ASTM A 153 for hardware.
  3. If required, plug vent holes after galvanizing and grind smooth.
  4. Galvanized surface shall be prepared per SSPC SP2 or SP3 to provide a smooth surface removing all runs, drips or sags.
  5. Galvanizing shall exhibit a rugosity (smoothness) of 16-25 microns or less when measured by a profilometer. This pertains to those elements that are less than 24 pounds per running foot.
  6. Galvanized surfaces, that are to receive coatings, must be blasted per SSPC SP 16. The use of iron, steel shot, and aluminum oxide grit as a blast medium, and power wire brushes are not permitted.
- B. **Warranty:**
1. Provide galvanizer's warranty that materials will be free from 10 percent or more visible rust for 20 years.

## PART 3 EXECUTION

### 3.1 APPLICATION OF FACTORY APPLIED METAL COATINGS

- A. **Galvanizing Application:** Galvanize materials in accordance with specified standards and this specification. The dry kettle process shall be used to eliminate any flux inclusions on the surface of the galvanized material. The use of the wet kettle process is prohibited.
- B. **Prior to Galvanizing:** The steel shall be immersed in a flux solution (zinc ammonium chloride). The flux tank must be 12 to 14 Baumé density and contain less than 0.4 percent iron.
1. To provide the galvanized surface required, the following procedures shall be implemented:
    - a. A monitoring recorder shall be utilized and inspected regularly to observe any variances in the galvanizing bath temperature.
    - b. The pickling tanks shall contain hydrochloric acid with an iron content less than 12 percent and zinc content less than 3 percent. Titrations shall be taken weekly at a minimum.
    - c. All chemicals and zinc shall be tested at least once a week to determine compliance with ASTM standards. All testing shall be done using atomic absorption spectrometry or x-ray fluorescence (XRF) equipment at a lab in the galvanizing facility.

### 3.2 INSTALLATION

- A. **Installation:** Comply with fabricator's and galvanizer's requirements for installation of materials and fabrications, including use of nylon slings or padded cables for handling factory-coated materials.
- B. **Touch-Up and Repair:** For damaged and field-welded metal coated surfaces, clean welds, bolted connections and abraded areas the following procedures must be used.
  - 1. For galvanized surfaces, apply organic zinc repair paint complying with requirements of ASTM A 780, modified to 95 percent zinc in dry film. Galvanizing repair paint shall have 95 percent zinc by weight. Basis of design is ZIRP by Duncan Galvanizing. Thickness of applied galvanizing repair paint shall be not less than coating thickness required by ASTM A 123 or A 153 as applicable.