Part 1 GENERAL

 1.1 SECTION INCLUDES

1. This Section specifies factory-applied metal coatings including the following:
	1. The basis of design is **DuncanⓇ** **Thermoset 10 - F**actory-applied polyamide epoxy powder prime coat and fluoropolymer urethane powder topcoat for interior and exterior aluminum fabrications or interior iron and steel fabrications. This system meets or exceeds the performance criteria for the AMMA 2605 specification.

 1.2 RELATED SECTION

1. 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

1. **Product Literature for Factory-Applied Metal Coatings**: Submit applicator’s product data sheets for coatings specified in this Section including physical performance test data.
2. **Certificate of Compliance for Items Coated by Applicator**: Submit notarized Certificate of Compliance, signed by the applicator, indicating compliance with requirements of specifications.
3. **Substitutions**: Substitutions must be submitted with performance criteria that meet or exceed the requirements of this specification.
4. **Certificate of Compliance with quality application standards:** The applicator shall be SSPC-QP3 certified.
5. **Certificate of Compliance for Shop Application**:The applicator shall apply the coatings in an enclosed spray booth that meets state air permitting requirements for HAP and VOC emissions per an approved Comprehensive Plan.
	1. QUALITY ASSURANCE
6. **Applicator’s Qualifications**: Applicator must have a minimum of ten years of experience in powder coating application.
7. **Coordination between Fabricator and Applicator**: The applicator shall review fabricator's shop drawings for suitability of materials for coatings and will notify the fabricator of any required modifications.
8. **Coating Applicator**: For the purpose of establishing a standard of quality, appearance and performance of the finished product, the finish provide by the coating applicator must be equal to or better than the finish provided by Duncan Galvanizing.

PART 2 PRODUCTS

* 1. SECTION INCLUDES
1. **Primer:** Provide factory-applied polyamide epoxy powder prime coat over metal that has

been sandblasted per SSPC SP6.

* 1. Basis of design: **DuncanⓇ Thermoset 10**.
	2. Primer shall be a polyamide epoxy powder primer with 0 VOC.
	3. Apply primer within 12 hours after blasting at the same plant in a controlled environment meeting applicable environmental conditions and as recommended by the primer coating manufacturer. Cure schedule shall be as recommended by the manufacturer.
	4. Primer shall be applied at 2-3 mils DFT and certified OTC/VOC compliant and conform to EPA and local requirements.
	5. Primer shall meet or exceed the following performance criteria as stipulated by the coating manufacturer:
		1. Cure Schedule: 10 min. at 400°F
		2. Specific Gravity: 1.58 +/- .05 1.4-1.7 +/- .05
		3. Coverage at 1.0 Mil 121.7 sq. ft./ lb.
		4. 60° Gloss: 55-65 (ASTM D-523)
		5. Adhesion: 5B (ASTM D-3359)
		6. Flexibility: Pass 1/8 “ Mandrel Bend (ASTM D-522)
		7. Pencil Hardness: 2H-3H (ASTM D-3363)
		8. Impact Resistance: 80 in-lbs direct (ASTM D-2794) 80 in-lbs reverse
		9. Typical Environmental Properties: On Bonderite 1000 Panels
		10. Salt Fog 1000 hours (ASTM B-117)
		11. Salt Fog (top-coated)\* 5000+ hours (ASTM B-117)
		12. Humidity 1000 hours PASSED
1. **Topcoat**: Provide fluoropolymer powder topcoat meeting AMMA 2605. Provide coating matching approved samples. Factory-applied metal coatings shall be applied in a facility acceptable to the coating manufacturer. Full cure of the coatings shall be verified by the coating manufacturer’s recommended test methods.
	1. Basis of design: **DuncanⓇ Thermoset 10**.
	2. Topcoat shall be a fluoropolymer powder with 0 VOC.
	3. Apply topcoat at the same plant in a controlled environment meeting applicable environmental conditions and as recommended by the powder coating manufacturer. Cure schedule shall be as recommended by the manufacturer.
	4. Topcoat shall be applied at 2-3 mils DFT and certified OTC/VOC compliant and conform to EPA and local requirements.
	5. Coatings must meet or exceed the criteria for the following categories as stipulated by the coating manufacturer. All testing must be on lab prepared panels.
		1. Adhesion: ASTM D 3359, no loss.
		2. Hardness: ASTM D 3363 (pencil), H min.
		3. Falling Sand ASTM D 968 40L/mil.
		4. Salt Fog Resistance: ASTM B 117, passes 4000 hrs.
		5. Humidity: ASTM D 2247, 4000 hours, few #8 blisters.
		6. Impact Resistance (3mm): ASTM D 2794, no loss.
		7. Color Retention: ASTM D 2244, 10-year less than or equal to 5 delta E.
		8. Chalk Resistance: ASTM D 4214, #8 rating.
		9. Gloss Retention: ASTM D 523, greater than or equal to 50 percent retention.
		10. Erosion Resistance: ASTM B 244, less than 10 percent film loss.
		11. Compliance: AAMA 2605.
2. **Warranty**:
	1. Gloss and color warranty shall be 10 years in accordance with the following performance specifications:
		1. Fade: Defined as a loss of gloss in excess of 20 units of gloss, which shall be measured in accordance with ASTM D 523-89 with 60 degrees geometry.
		2. Color shift: Not to exceed 12 DE CIE LAB units for whites and light colors. (Dark colors, yellows, oranges, and reds are excluded).

PART 3 EXECUTION

3.1 APPLICATION OF FACTORY APPLIED METAL COATINGS

1. **Coatings shall be applied under the following conditions**:
	1. Surface of the substrate shall be dry and free from dust, dirt, oil, grease or other contaminants. Coating and cure facility shall be maintained free of airborne dust and dirt until coatings are completely cured.
	2. All coatings must be applied in a controlled environment under the conditions specified by the coating manufacturer. All coatings must be mixed and applied according to the coating manufacturer’s specifications.

3.2 INSTALLATION

1. **Installation**: Comply with fabricator's and applicator's requirements for installation of materials and fabrications, including use of nylon slings or padded cables for handling factory-coated materials.
2. **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 factory-applied finish coatings, field-touch-up shall be performed by qualified applicators with experience in the application of high-performance industrial coatings. All coating manufacturer’s requirements for mixing, application and environmental conditions must be followed. Touch-up shall be performed so that the repair is not visible from a distance of 6 feet. A touch-up repair kit and repair procedures shall be provided to the Owner for each type of factory-applied finish upon request.

END OF SECTION