SECTION 09900 PROTECTIVE COATINGS

PART 1 - GENERAL

1.01 SCOPE:

A. Summary of Work: The CONTRACTOR shall provide coating on exterior and interior surfaces throughout the Project and which are listed in PART 2, with systems specified on "coating system" sheets at the end of this SECTION.

B. Regulatory Requirements: In addition to requirements specified elsewhere for environmental protection, provide coating materials that conform to the restrictions of the local and regional jurisdiction. Notify the DISTRICT of any coating specified herein that fails to conform to the requirements for the location of the Project or location of application.

1. Lead Content: Use only coatings that are totally lead free.
2. Chromate Content: Do not use coatings containing zinc-chromate or strontium chromate.
3. Asbestos Content: Materials shall not contain asbestos.
4. Mercury Content: Materials shall not contain mercury or mercury compounds.
5. The specified maximum volatile organic compounds (VOC) content shall apply to the unthinned product.

1.02 APPLICABLE STANDARDS AND PUBLICATIONS:

A. Standards or Codes: The edition of the publications of the organizations listed below in effect at the time of the advertisement for bids form a part of this specification to the extent referenced. See the various paragraphs for the specified standard. In the case of a conflict between the requirements of this SECTION and those of the listed document, the requirements of this SECTION shall prevail.

1. American National Standards Institute (ANSI):
   a. A13.1 - Scheme for the Identification of Piping Systems
   b. Z535.1 - Safety Colors
2. American Society for Testing and Materials (ASTM):
   a. C267 - Standard Test Methods for Chemical Resistance of Mortars, Grouts, and Monolithic Surfacings and Polymer Concretes
   b. D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings
   c. D4258 - Standard Practice for Surface Cleaning Concrete for Coating
   d. D4259 - Standard Practice for Abrading Concrete
   e. D4260 - Standard Practice for Acid Etching Concrete
   f. D4261 - Standard Practice for Surface Cleaning Concrete Unit Masonry for Coating
   g. D5201 - Standard Practice for Calculating Formulation Physical Constants of Paints and Coatings
   h. E84 - Standard Test Method for Surface Burning Characteristics of Building Materials
3. Society for Protective Coatings (SSPC) Surface Preparation Specifications:
   a. SP1 - Solvent Cleaning: Removes oil, grease, soil, drawing and cutting compounds, and other soluble contaminants.
   b. SP2 - Hand Tool Cleaning: Removes loose mill scale, loose rust, loose paint and other loose foreign matter.
   c. SP3 - Power Tool Cleaning: Removes loose material. Not intended to remove all scale or rust.
   d. SP5 - White Metal Blast Cleaning: Removes all scale, rust, foreign matter. Leaves surface gray-white uniform metallic color.

e. SP6 - Commercial Blast Cleaning: Two-thirds of each square inch free of all visible residues; remainder only light discoloration.

f. SP7 - Brush-Off Blast Cleaning: Removes only loose material, remaining surface tight and abraded to give anchor pattern.

g. SP10 - Near-White Blast Cleaning: At least 95% of each square inch shall be free of all visible residues.

h. SP11 - Power Tool Cleaning to Bare Metal

4. International Concrete Repair Institute (ICRI)

a. Guideline #03732: Surface preparation should comply with ICRI technical guideline number 03732 (selecting and specifying concrete surface preparation for sealers, coatings and polymer overlays).

5. United States Army Corps of Engineers (USACE)

a. CRD-C 48 - Standard Test Method for Water Permeability of Concrete

b. CRD C163 Test Method for Water Permeability of Concrete Using Triaxial Cell

1.03 DEFINITIONS:

A. Coating systems include surface preparation, prime coat (first coat), finish coats (second and third coats), inspection, cleaning, and touch-up of surfaces and equipment. Shop preparation, prime coat, and finish coats to be shop-applied may be specified elsewhere or referenced to this SECTION so that a complete system is specified and coordinated.

1. Where surface preparation and first (prime) coat are specified in other SECTIONS to be shop-applied, such as for structural steel, hollow metal doors or equipment, only the touch-up and finish coats are a part of field painting. Surface preparation is the required degree of preparation prior to application of first (prime) coat regardless if done in shop or field.

2. If materials are provided without shop primer such as miscellaneous steel or sheet metal, then surface preparation, first, second, and third coats are a part of field painting.

3. Concealed surfaces are generally not required to have finish-coats unless otherwise specified, but prime coat should be applied and touched up prior to concealment.

4. Where equipment and materials are provided with shop-applied finished coating system, only touch-up is a part of field painting.

5. Refer to applicable SECTIONs to determine whether surface preparation and first coat, or complete coating system, is to be shop-applied.

6. The term "DFT" means minimum dry film thickness, with no tolerance for thinner films.

1.04 SUBMITTALS:

A. Submittals include, but are not limited to, the following:

1. Schedule of products and paint systems to be used. Schedule shall include the following information:

a. Surfaces for system to be applied

b. Surface preparation method and degree of cleanliness

c. Product MANUFACTURER, name, and number

d. Method of application

e. Dry film thickness per coat of coating to be applied

2. Color charts for selection and acceptance

3. Product information

a. MANUFACTURER's data sheet for each product proposed

b. Technical and performance information that demonstrates compliance with the system performance and material requirements

c. MANUFACTURER's instructions and recommendations on surface preparation and application

d. Compatibility of shop and field applied coatings (where applicable)

e. Material Safety Data Sheet (MSDS) filled out completely according to the Florida Right-to-Know Law, Chapter 442, Florida Statutes, clearly identifying each product used.

4. Certification signed by coating MANUFACTURERs stating that each coating is suitable for service intended as stated on each coating system sheet, and that the materials to be installed comply in all respects with the requirements of this SECTION.

5. The CONTRACTOR shall certify in writing to the DISTRICT that applicators have previously applied all the systems in this SECTION and have the ability and equipment to prepare the surfaces and apply the coatings correctly.

1.05 RESPONSIBILITIES: (Not Used)

1.06 WARRANTY:

A. The MANUFACTURER shall warrant the MATERIALS, and PRODUCTS specified in this SECTION against defective materials and workmanship with the MANUFACTURER's extended warranty, for no less than five (5) years. The extended warranty period will start after the CONTRACTOR's one (1) year warranty expires. The MANUFACTURER shall provide a special MANUFACTURER's extended warranty for the stipulated period, or a Warranty Bond, to extend the MANUFACTURER's warranty period for the stipulated period.

B. The CONTRACTOR shall warranty the WORK against defects for one (1) year from the date of Substantial Completion.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS:

A. Proprietary names and product numbers are specified in most systems for material identification from these MANUFACTURERs.

1. PPG (Pittsburg Plate Glass Co.)
2. Carboline Company, Inc.
3. ICI Devoe Coating Company
4. Tnemec Company, Inc.
5. Sherwin-Williams

2.02 GENERAL:

A. Materials furnished for each coating system must be compatible with the substrate.

B. Single Manufacturer: All materials in each coating system shall be by the same coating MANUFACTURER to assure compatibility of coatings.

C. Compatibility: When shop-painted surfaces are to be field coated, the CONTRACTOR shall ascertain whether finish materials will be compatible with shop coating. Coatings of uncertain composition shall be removed completely before applying new coatings.

D. Colors:

1. Color of finish coatings shall match accepted color samples.

2. When second and finish coats of a system are of same type, CONTRACTOR shall tint or use an easy distinguishable alternate color on second coat to enable visual coverage inspection of the third coat. When first and second coats only are specified and are of same or different types, tint or use an easy distinguishable alternate color on first coat to enable visual coverage inspection of the second coat.

E. Include on label of material containers:
   1. MANUFACTURER's name, product name, and number
   2. Type of paint and generic name
   3. Color name and number
   4. Storage and temperature limits
   5. Mixing and application instructions, including requirements for precautions which must be taken
   6. Drying, recoat, or curing time

2.03 COATING SYSTEMS: Specified on the "Coating System" sheets at the end of this SECTION.

2.04 SURFACES TO BE COATED:

Generic Description	Specific Surfaces	System
Steel, mild exposure, non-immersion, Interior	1. Hollow metal doors and frames 2. Miscellaneous steel	S-1
Steel, severe exposure, non-immersion, exterior or interior, where only marginal cleaning can be performed	1. Miscellaneous exposed steel surfaces	S-2
Steel equipment, prime coated, severe exposure, non-immersion, interior and exterior	1. Carbon steel in fabricated equipment for gate hoists and machinery	S-3
Steel and non-ferrous metal, severe exposure, buried and immersed, interior of tank, and piping and equipment immersed in tank or basin	1. Roller gates and associated steel 2. Steel Sheet Piling, Walls	S-4
Steel, surface temperatures between 350 and 1000 degrees F continuous	1. Exhaust piping and silencer	S-5
Steel tank exterior, severe UV exposure	1. Steel Tanks	S-6
Steel, severe Exposure, Non-Immersion. Exterior or Interior. DTM Acrylic. Safety Yellow.	1. Bollards, guard posts 2. Natural gas lines, diesel fuel lines 3. Crane Bridge	S-7
Aluminum in contact with concrete or any other metal except galvanized steel	1. Conduits, pipes and plates	A-1

2.05 SURFACES NOT TO BE COATED:

A. Factory finished equipment, except for touch-up or noted otherwise

B. Metal surfaces of stainless steel, bronze, aluminum, and fiberglass

C. Concrete, unless listed on specific surfaces above

D. Machined surfaces

E. Grease fittings

F. Glass

G. Equipment nameplates

H. Platform gratings, stair treads, door thresholds, and other walking surfaces unless listed on specific surfaces above

I. Concrete Floors unless listed above

PART 3 - EXECUTION

3.01 DELIVERY, STORAGE, AND HANDLING:

A. Manufacturer Recommendations: Unless this specification requires otherwise, CONTRACTOR shall strictly follow the MANUFACTURER's printed recommendations and instructions for storing and handling coating system materials.

B. Delivery of Materials:

1. Deliver in sealed containers with labels and information legible and intact. Containers shall also have correct labels with required information.
2. CONTRACTOR shall allow sufficient time for testing, if required.

C. Storage of Materials: CONTRACTOR shall store under conditions recommended by the Material Safety Data Sheets:

1. All protective coating materials shall be used within the MANUFACTURER's recommended shelf life.
2. Store only acceptable materials on Project Site.
3. Store tightly sealed materials off ground and away from moisture, direct sunlight, extreme heat, and freezing temperatures. Provide separate area and suitable containers for storage of coatings and related coating equipment.
4. Dispose of used or leftover containers, thinners, rags, brushes, and rollers in accordance with applicable regulations.

3.02 PREPARATION FOR COATING:

A. General: All surfaces to receive protective coatings shall be clean prior to application of coatings. The CONTRACTOR shall examine all surfaces to be coated, and shall correct all surface defects before application of any coating material. All marred or abraded spots on shop-primed and on factory-finished surfaces shall receive touch-up restoration prior to any coating application. Surfaces to be coated shall be dry and free of visible dust.

B. Protection of surfaces not to be coated: Surfaces that are not to receive protective coatings shall be protected during surface preparation, cleaning, and coating operations.

C. Hardware, lighting fixtures, switch plates, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not to be painted shall be removed, masked, or otherwise protected. Drop cloths shall be provided to prevent coating materials from falling on or marring adjacent surfaces. The working parts of mechanical and electrical equipment shall be protected from damage during surface preparation and coating operations. Openings in motors shall be masked to prevent entry of coating or other materials.

D. Care shall be exercised not to damage adjacent work during blast cleaning operations. Spray painting shall be conducted under carefully controlled conditions. The CONTRACTOR shall be fully responsible for and shall promptly repair any and all damage to adjacent work or adjoining property occurring from blast cleaning or coating operations.

E. Protection of painted surfaces: Cleaning and coating shall be coordinated so that dust and other contaminants from the cleaning process will not fall on wet, newly coated surfaces.

3.03 SURFACE PREPARATION:

A. General

1. Prepare surfaces for each coating system conforming to SSPC or ASTM surface preparation specifications listed.
    a. If grease or oils are present, SSPC-SP1 must precede any other method specified.
    b. Remove surface irregularities such as weld spatter, burrs, or sharp edges, prior to specified surface preparation.

2. Depth of profile shall be as specified for each system, but in no instance shall it exceed one-third of the total dry-film thickness of complete system.

3. Prepare only those areas which will receive the first coat of the system on the same day.

B. Metals

1. The minimum abrasive blasting surface preparation shall be as indicated in the coating system sheets included at the end of this Section. Where there is a conflict between these specifications and the coating MANUFACTURER's printed recommendations for the intended service, the higher degree of cleaning shall apply.

2. All sharp edges shall be rounded or chamfered, and all burrs, surface defects, and weld splatter shall be ground smooth prior to blast cleaning.

3. The type and size of abrasive shall be selected to produce a surface profile that meets the system sheet requirements for the particular coating and service conditions. Abrasives for submerged and severe service coating systems shall be clean, hard, sharp cutting crushed slag. Automated blasting systems shall not be used for surfaces that will be in submerged service. Metal shot or grit shall not be used for surfaces that will be in submerged service, even if subsequent abrasive blasting is planned to be one with hard, sharp cutting crushed slag.

4. Abrasive shall not be reused unless an automated blasting system is used for surfaces that will be in non-submerged service. For automated blasting systems, clean oil-free abrasives shall be maintained. The abrasive mix shall include at least 50 percent grit.

5. The CONTRACTOR shall comply with the applicable federal, state, and local air pollution control regulations for blast cleaning.

6. Compressed air for air blast cleaning shall be supplied at adequate pressure from well maintained compressors equipped with oil and moisture separators that remove at least 95 percent of the contaminants.

7. Surfaces shall be cleaned of all dust and residual particles of the cleaning operation by dry air blast cleaning, vacuuming, or another method prior to painting.

8. Enclosed areas and other areas where dust settling is a problem shall be vacuum cleaned and wiped with a tack cloth.

9. Damaged or defective coating shall be removed by the blast cleaning to meet the clean surface requirements before recoating.

10. If the required abrasive blast cleaning will damage adjacent work, the area to be cleaned is less than 100 square feet, and the coated surface will not be submerged in service, then SSPC SP2 or SSPC SP3 may be used.

11. Shop applied coatings of unknown composition shall be completely removed before the indicated coatings are applied. Valves, castings, ductile iron pipe, and fabricated pipe or equipment shall be examined for the presence of shop-applied temporary coatings. Temporary coatings shall be completely removed by solvent cleaning per SSPC SP1 before the abrasive blast cleaning work is started.

12. Shop primed equipment shall be solvent cleaned in the field before finish coats are applied.

3.04 APPLICATION:

A. CONTRACTOR shall apply coatings in accordance with coating MANUFACTURER's recommendations. Materials shall be thoroughly stirred, strained, and kept at uniform consistency during application. Coatings from different MANUFACTURERs shall not be mixed together.

B. Use properly designed brushes, rollers, and spray equipment for all applications.

C. On unprimed surfaces apply first coat of the system the same day as surface preparation.

D. Cleaned surfaces and all coats shall be inspected prior to each succeeding coat. The CONTRACTOR shall schedule such inspection with the DISTRICT in advance.

E. Blast cleaned ferrous metal surfaces shall be painted before any rusting or other deterioration of the surface occurs. Blast cleaning shall be limited to only those surfaces that can be coated in the same working day.

F. Special attention shall be given to edges, angles, weld seams, flanges, nuts and bolts, and other places where insufficient film thicknesses are likely to be present. Use stripe painting for these areas.

G. Dry-film thickness of each system shall be at least as thick as the minimum specified. Maximum dry-film thickness shall not exceed the minimum more than 20% or coating MANUFACTURER's requirements, whichever is less. Where a dry-film thickness range is specified, the thickness shall not be shall not be outside the range.

H. Shop and field painting shall not be applied within three (3) inches of unprepared surface of any substrate such as areas to be welded or bolted.

I. Environmental Conditions:

1. Atmospheric temperature must be 50 degrees Fahrenheit or higher during application, unless approved in writing by coating MANUFACTURER. Do not apply coatings when inclement weather or freezing temperature may occur during the curing time interval.
2. Wind velocities for exterior applications shall be at a minimum to prevent overspray or fallout and not greater than coating MANUFACTURER's limits.
3. Relative humidity must be less than 85% and the temperature of the surface to be painted must be at least five (5) degrees above the dew point.
4. Provide adequate ventilation in all areas of application to ensure that at no time does the content of air exceed the Threshold Limit Value given on the MANUFACTURER's Material Safety Data Sheets for the specific coatings being applied.

J. Recoat Time: In the event a coating, such as an epoxy, has exceeded its recoat time limit, prepare the previously applied coating in accordance with MANUFACTURER's recommendations.

K. Protection:

1. Cover or otherwise protect surfaces not to be painted. Remove protective materials when appropriate.
2. Mask, remove, or otherwise protect finish hardware, machined surfaces, grilles, lighting fixtures, and prefinished units as necessary.
3. Provide cover or shields to prevent surface preparation media and coatings from entering orifices in electrical or mechanical equipment. Where ventilation systems must be kept in operation at time of surface preparation, take precautions to shield intakes and exhausts to prevent the materials from entering system or being dispersed.
4. Provide signs to indicate fresh paint areas.
5. Provide daily cleanup of both storage and working areas and removal of all paint refuse, trash, rags, and thinners. Dispose of leftover containers, thinners, rags, brushes, and rollers that cannot be reused in accordance with applicable regulations.
6. Do not remove or paint over equipment data plates, code stamps on piping, or UL fire-rating labels.

3.05 INSPECTION:

A. CONTRACTOR shall provide and use a wet-film gauge to check each application approximately every fifteen (15) minutes in order to immediately correct film thickness under or over that specified.

B. On ferrous surfaces, measurements shall be made with one of the thickness gauges listed below. The gauge shall be calibrated on metal practically identical in composition and surface preparation to that being coated and be of substantially the same thickness, except that for measurements on metal thicker than 1/4 inch, the instrument may be calibrated on metal with a minimum thickness of 1/4 inch. When calibrating any of the gauges for making film measurements of over three (3) mils, the calibrating thickness standards (shims) shall be of non-metallic composition. Where only one thickness criterion is

specified, the calibrating shim thickness shall closely approximate the specified thickness, but where both thicknesses are specified, the shim's thickness shall closely approximate an average of the two. Calibrating instructions, thickness standards and, in the case of the Mikrotest gauge, a calibrating tool, should obtained from the MANUFACTURER or supplier of the gauge. Authorized thickness gauges are:

1. General Electric, Type B, General Electric Company
2. Mikrotest, Elektrophysik - Koln
3. Elcometer, Elcometer Instruments, Ltd.
4. Inspector Gage, Elcometer Instruments, Ltd.
5. Minitector, Elcometer Instruments, Ltd.

C. Use holiday or pinhole detector on systems over metal substrates to detect and correct voids when indicated on system sheet.

D. Furnish a sling psychrometer and perform periodic checks on both relative humidity and temperature limits.

E. Check temperature of the substrate at regular intervals to be certain surface is five (5) degrees Fahrenheit or more above the dew point.

3.06 CLEANING AND REPAIRS:

A. Remove spilled, dripped, or splattered paint from surfaces.

B. Touch up and restore damaged finishes to original condition. This includes surface preparation and application of coatings specified.

END OF SECTION

	PROTECTIVE COATING SYSTEM
	System S-1

SERVICE:	Steel, Mild Exposure, Non-Immersion, Interior
Surface Preparation:	Field: SSPC-SP1 and SP6. Clean and dry.
First Coat:	High solids polyamine or polyamide epoxy with minimum 67% solids by volume. Spray Applications; apply at 5.0 - 8.0 mils DFT. Brush applications, apply at 4.0 mils DFT.
Second Coat:	Same as first coat. Note: Second coat required only for brush applications.
Third Coat (Exterior):	Not required.
System Total:	Minimum 8.0 mils dry film thickness.
Volatile Organic Content:	Maximum 3.5 lbs/gal (425 g/l).

COATING MANUFACTURER	PRODUCT DESIGNATION	
	FIRST COAT	**SECOND COAT**
PPGCarboline	Amerlock 2/400	Same as first coat
ICI Devoe	Carboguard 890	Same as first coat
Tnemec	Devran 224HS	Same as first coat
Sherwin-Williams	Hi-Build Epoxoline II N69	Same as first coat
	Macropoxy 646 FC(5-8mils DFT)	Same as first coat

	PROTECTIVE COATING SYSTEM
	System S-2

SERVICE:	Steel, Severe Exposure, Non-Immersion, Exterior or Interior, where only marginal cleaning can be performed
Surface Preparation:	Field: SSPC-SP1 and SP3. Clean and dry.
First (prime) Coat:	Polyamidoamine epoxy with wetting and penetrating properties and with 98% solids by volume. Apply at 1.5 to 2.0 mils dry film thickness.
Second Coat:	High build polyamide epoxy with minimum 65% solids by volume. Apply at 5.0 mils dry film thickness.
Third Coat (Exterior):	High solids aliphatic or acrylic polyurethane gloss enamel with minimum 65% solids by volume. Apply at 2.0 mils dry film thickness.
System Total:	Minimum 8.5 mils dry film thickness, Exterior. Minimum 6.5 mils dry film thickness, Interior.
Volatile Organic Content:	Maximum 2.8 lbs/gal (340 g/l).

COATING MANUFACTURER	**PRODUCT DESIGNATION**		
	FIRST COAT	**SECOND COAT**	**THIRD COAT**
Carboline	Carboguard 890	Same as first coat	Carboline 133HB
ICI Devoe	Bar-Rust 231	Devran 224HS	Devthane 379H
Tnemec	Chembuild 135	Not Applicable	Endura-Shield 1074
PPG	Amerlock 2/400 or Sealer	Amerlock 2/400	Amercoat 450H
Sherwin-Williams	Macropoxy 646 FC	Same as first coat	Acrolon 218 HS Polyurethane

	PROTECTIVE COATING SYSTEM
	System S-3

SERVICE:	Equipment, Factory Coated, Severe Exposure, Non-Immersion, Exterior or Interior
Surface Preparation:	Field or Shop (if applicable) First Coat: SSPC-SP1 and SP6. Clean and dry.
First Coat: (Field)	Modified vinyl-alkyd or epoxy-mastic, compatible with existing and new finish. Apply at 1.5 to 2.0 mils dry film thickness.
Second Coat Interior:	High build polyamide epoxy with minimum 50% solids by volume. Apply at 5.0 mils dry film thickness.
Second Coat Exterior:	High solids aliphatic or acrylic polyurethane gloss enamel with minimum 52% solids by volume. Apply at 2.0 mils dry film thickness.
System Total:	Interior: 6.5 mils dry film thickness in addition to existing coating. Exterior: 3.5 mils dry film thickness in addition to existing coating. Check for voids with holiday or pinhole detector.
Volatile Organic Content:	Maximum 3.5 lbs/gal (425 g/l).

COATING MANUFACTURER	**PRODUCT DESIGNATION**		
	FIRST COAT	**SECOND COAT (INT)**	**SECOND COAT (EXT)**
PPG	Amercoat 385 or 2/400	Same as first coat	Amercoat 450H
Carboline	Carbomastic 15	Carboguard 890	Carboline 134 HG
ICI Devoe	Bar-Rust 231	Devran 224 HS	Devthane 379H
Tnemec	Omnithane 1	Hi-Build Epoxoline II N69	Endura-Shield 1074
Sherwin-Williams	Kem Kromlik Primer	Macropoxy 646C	Acrolon 218 HS Polyurethane

	PROTECTIVE COATING SYSTEM
	System S-4

SERVICE:	Steel and Non-Ferrous Metals, Severe Exposure. Buried and Immersed, Interior of Tank, Piping or Equipment Immersed in Tank or Basin.
Surface Preparation:	SSPC-1 to remove all grease and oils, soluble salt removal (if necessary) SSPC-5 (white metal) to achieve a surface profile of 1.0 – 2.0 mils
First Coat:	Moisture Cured Urethane Zinc Primer without MIO minimum 80% Zinc
Second Coat:	Moisture Cured Urethane Coal Tar
Third Coat:	Same as second coat.
System Total:	Minimum 15.00 mils dry film thickness. Check for voids with holiday or pinhole detector.
Volatile Organic Content:	Maximum 2.8 lbs/gal (340 g/l).

COATING MANUFACTURER	**PRODUCT DESIGNATION**		
	FIRST COAT	**SECOND COAT**	**THIRD COAT**
Wasser Coatings	MC-Zinc	MC-Tar	Same as second coat
Tnemec	Tneme-Zinc 90-1K97	Omnithane Hydrocarb X 546	Same as second coat
Xymax	Mono Zinc Ultra 2401	Mono Guard 6201	Same as second coat

	PROTECTIVE COATING SYSTEM
	System S-5

SERVICE:	Steel, Surface Temperatures 350 to 1000 degrees F, Continuous
Surface Preparation:	Shop or Field First Coat: SSPC-1, SP10, and profile depth 1 mil.
	Field Touch-Up: SSPC-6 and profile depth 1 mil.
First Coat:	Silicone aluminum. Aluminum or grey color. Apply at 1.0 to 1.5 mils dry film thickness, or greater as required by manufacturer.
Second Coat:	Same as first coat.
Third Coat:	Not required.
System Total:	Minimum 2.0 to 3.0 mils dry film thickness.
Volatile Organic Content:	Maximum 5.2 lbs/gal (623 g/l).

COATING MANUFACTURER	**PRODUCT DESIGNATION**	
	FIRST COAT	**SECOND COAT**
PPG	Amercoat 878	Amercoat 873878
Carboline	Carbozinc 11	Thermaline 4700 Aluminum
Devoe	HT-12	Same as first coat
Tnemec	Silicone Aluminum 39-1261	Same as first coat
Sherwin-Williams	TemperKote 1000	Same as first coat

	PROTECTIVE COATING SYSTEM
	System S-6

SERVICE:	Steel tank exterior, severe UV exposure
Surface Preparation:	SSPC-SP-6, commercial blast clean
First Coat:	single component, zinc rich moisture cure urethane, 4 mils
Second Coat:	single component moisture cure urethane, 4 mils
Third Coat:	single component moisture cure urethane, gloss, 2 mils
System Total:	10 mils
Volatile Organic Content:	2.8 lb per gal (340 g/L)

COATING MANUFACTURER	**PRODUCT DESIGNATION**		
	FIRST COAT	**SECOND COAT**	**THIRD COAT**
Wasser Coatings	MC-Zinc	MC-CR	MC-Shieldcoat
Sherwin Williams	Corothane I Zinc Primer	Corothane I HS Aliphatic	Same as 2nd coat
PPG	Durathane MCZ	Amerlock 2/400	Amercoate 450H

	PROTECTIVE COATING SYSTEM
	System S-7

SERVICE:	Steel; Severe Exposure, Non-Immersion. Exterior or Interior. DTM Acrylic. Safety Yellow.
Surface Preparation:	SSPC-SP1 and SP6. Clean and dry.
First Coat:	Direct to Metal Acrylic Safety Yellow. Apply a minimum of 2.5 mils dry film thickness, or greater as required by MANUFACTURER.
Second Coat:	Same as first coat.
Third Coat:	Not required.
System Total:	5.0 mils dry film thickness.
Volatile Organic Content:	Maximum 2.08 lb per gal (< 250 g/L)

COATING MANUFACTURER	PRODUCT DESIGNATION	
	FIRST COAT	**SECOND COAT**
Benjamin Moore & Co.	DTM Acrylic Gloss Enamel P28-15	Same as 1st coat
Sherwin-Williams	B66Y37 DTM Acrylic Gloss	Same as 1st coat

	PROTECTIVE COATING SYSTEM
	System A-1

SERVICE:	Aluminum in contact with concrete or any other metal except galvanized steel
Surface Preparation:	Field: SSPC-SP1. Clean and dry
First Coat:	High solids polyamine or polyamide epoxy with minimum 67 % solids by volume. Brush apply to surfaces to be in contact at 4.0 mils DFT
Second Coat:	Same as first coat
Third Coat:	Not required
System Total:	Minimum 8 mils DFT
Volatile Organic Content:	Maximum 3.5 lbs/gal (425 g/l)

COATING MANUFACTURER	**PRODUCT DESIGNATION**	
	FIRST COAT	**SECOND COAT**
PPG	Amerlock 2/400	Same as first coat
Carboline	Carboguard 890	Same as first coat
ICI Devoe	Devran 224HS	Same as first coat
Tnemec	Hi-Build Epoxoline II N69	Same as first coat
Sherwin-Williams	Macropoxy 646 FC Expoxy	Same as first coat
Wasser Corporation	MC-Prepbond 100	Same as first coat