SECTION 337030

PAINTING AND PROTECTIVE COATINGS

PART 1 - GENERAL

1.1 SCOPE

A. This specification covers the surface preparation, priming and finish coating of <ENTER PROJECT SPECIFIC INFORMATION HERE>. The coatings are to be applied in accordance with manufacturer's instructions and recommendations. All coatings, grouts and other materials in contact with the water after installation must comply with NSF/ANSI 61: Drinking Water System Components – Health Effects.

1.2 GENERAL

A. WORK INCLUDED

The Contractor shall, unless otherwise specified, furnish all labor, materials, apparatus, scaffolding, and all appurtenant work in connection with painting and protective coatings, complete as indicated, specified and required under the contract.

B. LOCATION OF THE WORK: The location of the is at <ENTER PROJECT SPECIFIC INFORMATION HERE>. Principal items to be coated include, but are not limited to:

1. <ENTER PROJECT SPECIFIC INFORMATION HERE>
2. <ENTER PROJECT SPECIFIC INFORMATION HERE>

C. It is the Contractor's responsibility to examine areas and conditions under which coating systems are to be applied, and to notify the City of areas or conditions which are not acceptable. Do not begin surface preparation or application until areas or conditions have been corrected.

D. COORDINATION OF THE WORK

The Contractor shall be responsible for the satisfactory coordination of the work. The Contractor is responsible for obtaining construction schedules from each subcontractor and require each subcontractor to maintain schedules and coordinate modifications.

1.3 METHOD OF MEASUREMENT AND PAYMENT

The work shall be measured, and the compensation determined as depicted in the contract documents and bid form.

1.4 SUBMITTALS

A. General: The Contractor shall submit in writing documentation to justify approval of these materials by the City prior to the start of the project in accordance with NPU Technical Specification Section 013000 Shop Drawings, Submittals and Samples.

The Contractor's submittals shall include the statement that the submittals have been reviewed and the materials meet the contract specifications and/or NPU Standard Details.

No procurement of materials shall take place until the final shop drawings are reviewed by Engineer and NPU. Final approval is at the discretion of NPU.

B. Required Submittals

1. Samples

   a. Prepare and submit for approval one (1) copy of color samples on 8-1/2-inch X 11-inch size cards for each paint and protective coating system. The sample card shall clearly show each coat of the finish system, shall be clearly marked with the manufacturer's name and product identification, shall be submitted in sufficient time to allow for approval and, if necessary, resubmitted without causing any delay of the project.

2. Coatings Materials List

   a. Provide an electronic copy of a paint and coatings materials list which indicates the Manufacturer and paint number, keyed to the coating schedule herein, for approval prior to or at the time of submittal of samples required herein.

   b. The Contractor shall include, with the submittal, the protective coating schedule for shop and field coatings of items to receive protection. The schedule shall conform to the specified requirements for surface preparation, priming, and coating for items covered, and shall follow the same requirements for similar work where such work has not been specifically called out. No bare ferrous nonworking surfaces shall be omitted from the schedule. Particular care shall be taken to cover in sufficient detail the coating of mechanical joints and

other mechanical devices, which shall conform to the recommended practice of the manufacturer of the joint or other mechanical devices.

c. Coatings to be used on plastic and fiberglass materials shall be certified as acceptable by all plastic and fiberglass Manufacturers whose products are to be coated. Certification copies shall be submitted. The Contractor shall be certified in writing by the painting and coating material Manufacturers as qualified applicators of their products and copies of the certification shall be submitted.

3. Product Data Sheets: The Contractor shall submit paint and coatings material Manufacturers' printed technical data sheets for products intended for use in each paint and coating system. Data sheets shall fully describe material as to its intended use, makeup, recommended surface preparation and application conditions, primers, material mixing and application (including recommended dry film thickness recoat time), precautions, safety, and maintenance cleaning directions.

4. Safety Data Sheets (SDSs): SDSs shall accompany all paint submittals and shall be prominently displayed at the job site during all painting activities. All materials requiring SDS copies must be presented on site when the products arrive and placed with the site specific SDS sheets until the product is used or removed from the site.

1.5 REFERENCE STANDARDS

A. Without limiting the generality of other requirements of Technical Specifications, all cleaning, surface preparation, and coating shall conform to the applicable requirements of the referenced portions of the standards specified herein to the extent that the requirements therein specified are not in conflict with the provisions of this Section.

B. Reference standards and recommended practices referred to in this Specification Section shall be the latest revision of any such document in effect at the time of bidding. The following documents are a part of this Section. <ENTER PROJECT SPECIFIC INFORMATION HERE>Where this Section differs from these documents, the requirements of this Section shall apply.

C. American Society for Testing and Materials (ASTM).
<ENTER PROJECT SPECIFIC INFORMATION HERE>

1. ASTM A780—Standard Practice for Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings.

2. ASTM C501—Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser.

3. ASTM D520—Standard Specification for Zinc Dust Pigment.

4. ASTM D522—Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.

5. ASTM D1002—Standard Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal).

6. ASTM D2240—Standard Test Method for Rubber Property—Durometer Hardness.

7. ASTM D3734—Standard Specification for High-Flash Aromatic Naphthas.

8. ASTM D2697—Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings.

9. ASTM D4060—Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.

10. ASTM D4138—Standard Practices for Measurement of Dry Film Thickness of Protective Coating Systems by Destructive, Cross-Sectioning Means.

11. ASTM D4258—Standard Practice for Surface Cleaning Concrete for Coating.

12. ASTM D4260—Standard Practice for Liquid and Gelled Acid Etching of Concrete.

13. ASTM D4261—Standard Practice for Surface Cleaning Concrete Unit Masonry for Coating.

14. ASTM D4263—Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.

15. ASTM D4787—Standard Practice for Continuity Verification of Liquid or Sheet Linings Applied to Concrete Substrates.

16. ASTM D6386—Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting.

17. ASTM D7091—Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals.

18. ASTM E84—Standard Test Method for Surface Burning Characteristics of Building Materials.

D. National Association of Corrosion Engineers International (NACE)

1. Quality Assurance: Evaluation of surface preparation for ferrous metals shall be based upon NACE Standard TM-01-Visual Standard for Surface Preparation.

2. NACE SP0188—Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates.

E. American National Standards Institute (ANSI).

1. ASNI Z9.2 – Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

2. ANSI Z87.1 – Occupational and Educational Personal Eye and Face Protection Devices

F. Steel Structure Painting Council (SSPC)

1. SSPC PA-1—Shop, Field, and Maintenance Painting of Steel.

2. SSPC PA-2—Measurement of Dry Coating Thickness with Magnetic Gauges.

3. SSPC SP-1—Solvent Cleaning.

4. SSPC SP-2—Hand Tool Cleaning.

5. SSPC SP-3—Power Tool Cleaning.

6. SSPC SP-5—White Metal Blast Cleaning.

7. SSPC SP-6—Commercial Blast Cleaning.

8. SSPC SP-7—Brush-Off Blast Cleaning.

9. SSPC SP-10—Near-White Blast Cleaning.

10. SSPC SP-11—Power Tool Cleaning to Bare Metal.

11. SSPC SP-13—Surface Preparation of Concrete

G. U.S. Department of Defense

1. MIL-P-21035—Paint High Zinc Dust Content, Galvanizing Repair.

1.6 PROTECTION OF WORK

A. The Contractor shall be responsible for any and all damage to his work or the work of others caused by Contractor's painting activities during the time his work is in progress.

1.7 EXTRA STOCK

A. The Contractor shall deliver to the City one (1) gallon can of each type and color of finish paint and coating used on the project for every ten (10) gallons applied. As a minimum, one (1) gallon of each type and color of finish paint and coating used on the project shall be provided as extra stock. Extra stock paint shall be supplied in appropriate sealed containers and be clearly labeled as to paint type, formula, and color.

1.8 RIGHT OF REJECTION

A. The City shall have the right to reject all material or work that is unsatisfactory and require the replacement of either or both.

1.9 ONE MANUFACTURER

A. All products shall be the products of one manufacturer unless a specific specialty coating system is specified. Without exception, all coatings for any service condition specified herein shall be by one manufacturer. Once a paint manufacturer has been selected and approved by the City, the Contractor shall ensure that all equipment manufacturer's primer their equipment with the same or a compatible primer.

1.10 PRE-APPLICATION MEETING

A. Prior to commencing painting work, a pre-application meeting shall be held for the purpose of reviewing the painting and coating requirements of the project. The City, Contractor, and a representative for the Applicator shall be present. A schedule of work to be accomplished shall be established.

1.11 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. The Contractor shall comply with all requirements of the Manufacturer for storage and handling of the individual products.

B. Paint and protective coating materials shall be delivered to the site and stored in the Manufacturer's original, sealed containers. Labels and tags

shall remain intact plainly showing the designated name, formula or specification number, batch number, color, date of manufacture, manufacturer's directions, and name of manufacturer, all of which shall be plainly legible at the time of use.

C. Coating materials and equipment shall be stored in designated areas.

D. Coating containers shall be opened only when required for use.

E. Coatings shall be mixed only in designated areas and in the presence of the City, unless otherwise directed. Coatings shall be thoroughly stirred or agitated to uniformly smooth consistency and prepared and handled in a manner to prevent deterioration and inclusion of foreign matter.

F. Unless otherwise specified or approved, no materials shall be reduced, changed, or used except in accordance with the Manufacturer's label or tag on container.

G. Damaged materials and/or materials exceeding the shelf life shall not be used.

H. The Contractor will be responsible for storing coatings onsite in accordance with the Manufacturer's latest written recommendations.

I. Contractor will be responsible for disposal of all waste, empty containers, etc.

J. All recommendations of the Manufacturer in regard to the health and safety of the workers shall be followed.

1.11 FIELD CONDITIONS

A. All coatings shall be applied in dry and dust-free environment.

B. No coating shall be applied when temperatures are outside the manufacturer's written recommended limits.

PART 2 - PRODUCTS

2.1 GENERAL

A. Surfaces to receive paint and protective coating materials as herein specified in this section shall be coated in conformance with the applicable coating systems specified herein. All materials specified by name and/or Manufacturer or approved for use under these Technical Specifications, shall be delivered unopened at the job site in their original containers and shall not be opened until the City is present.

B. Whenever a Manufacturer's brand name is specified, it is intended to define the general type and quality of paint of coating desired. Other coatings or paints of equal quality may be used with prior written approval by the City. All paint and coatings shall be produced and applied as herein called for or, if not specifically called for, it shall be applied in accordance with the Manufacturer's printed recommendations as approved by City.

C. The following index lists the various painting and coating systems by service and generic type.

System No.	Generic Type	Surface Material	Finish	Typical Function
1	Epoxy / Polyurethane	Ferrous Metal, Non-galvanized	Gloss	Exterior metals not subject to immersion or frequent splashing
2	Polyurethane	Ferrous Metal, galvanized	Gloss	Exterior metals not subject to immersion or frequent splashing
3	Epoxy	Ferrous Metal, Non-galvanized	Semi-gloss	Interior metals not subject to immersion or frequent splashing or condensation
4	Alkyd	Ferrous Metal, Non-galvanized	Semi-gloss	Interior metals not subject to immersion or frequent splashing or condensation
5	Epoxy	Ferrous Metal, Non-galvanized	Semi-gloss	Interior metals subject to condensation
6	Epoxy	Ferrous Metal, galvanized	Semi-gloss	Interior metals subject to condensation
7	Epoxy	Ferrous Metal, Non-galvanized	Semi-gloss	Metals subject to immersion or frequent splashing
8	Epoxy	Ferrous Metal, galvanized	Semi-gloss	Metals subject to immersion or frequent splashing
9	Epoxy	Concrete	Semi-gloss	Interior
10	Epoxy	Concrete	Tile-like gloss	Interior walls of washrooms
11	Acrylic	Concrete	Low sheen	Precast concrete ceilings, beams, columns

12	Elastomeric	Concrete	Low sheen	Exterior concrete
13	Epoxy	Masonry	Semi-gloss	Interior masonry
14	Epoxy	Masonry	Tile-like gloss	Interior walls of washrooms
15	Elastomeric	Masonry	Low sheen	Exterior masonry
16	Acrylic	Masonry	Low sheen	Interior masonry
17	Acrylic	Drywall, plaster	Low sheen	Interior drywall, plaster
18	Acrylic	Plaster, stucco	Low sheen	Exterior plaster, stucco
19	Alkyd	Wood	Gloss	Exterior wood
20	Alkyd	Wood	Semi-gloss	Exterior wood
21	Alkyd	Wood	Gloss	Interior wood
22	Alkyd	Wood	Semi-gloss	Interior wood
23	Acrylic	Wood	Low sheen	Interior wood
24	Acrylic	Canvas wrapped insulation	Semi-gloss	Canvas wrapped insulated piping
25	Coal Tar Epoxy	Ferrous Metal	Semi-gloss	Metals submerged in non-potable water
26	Coal Tar Epoxy	Concrete	Semi-gloss	Submerged concrete in non-potable water or below grade
27	Epoxy	Ferrous Metal	Semi-gloss	Metals submerged in potable water
28	Epoxy	Concrete	Semi-gloss	Concrete submerged in potable water
29	Acrylate	Concrete	Low Sheen	Exterior Concrete

30	Zinc/Polyurethane/ Fluropolymer	Steel, Ductile Iron	Low Sheen	Exterior Piping

2.2 SERVICE CONDITION

A. The following coating systems are required for this project.

1. System No. <ENTER PROJECT SPECIFIC INFORMATION HERE>.

C. Surface Preparation: <ENTER PROJECT SPECIFIC INFORMATION HERE>

D. Primer: <ENTER PROJECT SPECIFIC INFORMATION HERE>

C. Application: <ENTER PROJECT SPECIFIC INFORMATION HERE>

E. Acceptable Products:

1. <ENTER PROJECT SPECIFIC INFORMATION HERE>

PART 3 – EXECUTION

3.1 COMPLIANCE WITH MANUFACTUER'S RECOMMENDATIONS

A. Unless otherwise specified herein, the paint and coating Manufacturer's printed recommendations and instructions for thinning, mixing, handling, applying, and protection of the coating materials; for preparation of surfaces for coating; and for all other procedures relative to coating shall be strictly observed. No substitutions or other deviations will be permitted without written permission of the City.

3.2 SAFETY REQUIREMENTS

A. In accordance with the requirements of applicable OSHA Regulations for Construction, the Contractor shall provide and require the use of personal protective equipment for all persons working in or about the project Site.

B. Respirators shall be worn by all persons engaged in, and assisting in, spray painting. In addition, workers engaged in or near the work during sandblasting shall wear eye and face protection devices meeting the requirements of ANSI Z87.1 and approved OSHA Regulations for sand blasting operations, and equipment including approved air-purifying, half-mask, or mouthpiece respirator with appropriate filter.

C. Ventilation: Where ventilation is used to control potential exposure to workers as set forth in Section 1910.94 of the OSHA Regulations for Construction, ventilation shall be adequate to reduce the concentration of the air contaminant to the degree that a hazard to the worker does not exist. Methods of ventilation shall meet the requirements set forth in ASNI Z9.2.

D. Sound Levels: In accordance with Sections 1926.52 and 1926.101 of OSHA Regulations for Construction, whenever the occupational noise exposure exceeds maximum sound levels as set forth in Table D-2 of the reference OSHA regulation, ear protective devices shall be fitted and used, and a continuing, effective hearing conservation program shall be administered.

E. Cloths and cotton waste that might constitute a fire hazard shall be placed in closed metal containers or destroyed at the end of each workday.

3.3 STORAGE, MIXING, THINNING

A. Exercise care to keep fire hazards to a minimum. Provide an approved hand fire extinguisher near each paint storage and mixing area. No oily waste, rags, or painting equipment shall be left scattered throughout the premises.

B. Mix coatings in accordance with manufacturer's instructions. Colors shall be thoroughly mixed with no streaks or separation of color. Do not add thinners, driers or other additives except as recommended by the coating manufacturer. Do not incorporate in the coating any thinners or solvents used for cleaning brushes or equipment.

C. Protect all adjacent areas against damage and leave storage and mixing areas clean. Packaged materials shall be thinned immediately prior to application in accordance with the manufacturer’s printed recommendations and instructions.

3.4 WORKMANSHIP

A. Skilled craftsmen and experienced supervision shall be used on all work.

B. All paint and coatings shall be applied to produce an even film of specified uniform thickness. Edges, corners, crevices, welds, joints, and similar areas shall receive special attention to ensure that they have been thoroughly cleaned and that they receive an adequate

thickness of paint equivalent to adjacent areas.

C. The finished surfaces shall be free form runs, drops, ridges, waves, laps, brush marks, and variations in color, texture, and finish. The hiding shall be so complete that the addition of another coat of paint would not increase the hiding.

D. Installations shall be protected by the use of drop cloths or other approved precautionary measures.

3.5 PREPARATION FOR PAINTING AND COATING

A. All surfaces to receive paint and protective coatings shall be cleaned as specified herein prior to application of coating materials. The Contractor shall examine all surfaces to be coated and shall correct all surface defects before application of any coating material. Beginning the work of this Section without reporting unsuitable conditions to the City constitutes acceptance of conditions by the Contractor. Any required removal, repair, or replacement of this Work caused by unsuitable conditions shall be done at no additional cost to the City.

B. All marred or abraded spots on shop-primed and factory-finished surfaces shall receive touch-up restoration prior to any other coating application.

F. Mildew shall be removed and neutralized by scrubbing affected areas thoroughly with a solution made by adding two (2) ounces of tri-sodium phosphate and eight (8) ounces of sodium hypochlorite to one (1) gallon warm water. Use a scouring powder, if necessary, to remove mildew spores. Rinse with clean water and allow to dry thoroughly before painting.

3.6 ITEMS NOT TO BE COATED

A. Hardware, anodized aluminum, stainless steel, switch and receptacle plates, escutcheons, hardware accessories, nameplate data tags, machined surfaces, and similar items in contact with coated surfaces and not to be coated shall be removed or masked prior to surface preparation and painting operations. Following completion of coating of each piece, removed items shall be reinstalled and masks shall be removed. Workers skilled in trades involved shall do such removal and installation.

3.7 PROTECTION OF ADJACENT SURFACES

A. Provide necessary protection for completed work and all adjoining surfaces. Provide temporary closures as required to prevent circulation

of dust from adjacent areas where other work is in progress. Where it is necessary to remove existing protection of work of others, such protection shall be fully replaced. It shall be the responsibility of the Contractor to locate and avoid damage to any and all existing water, gas, sewer, electric, telephone, and other utilities, structures, or appurtenances. The Contractor shall repair or pay for all damages caused by their operations or their personnel to existing utilities, structures, appurtenances, or properties, either below ground or above ground and shall settle in full all damage suits which may arise as a result of Contractor's operations.

3.8 SURFACE PREPARATION

A. General

1. Prepare all surfaces in accordance with the coating manufacturer's instructions and as specified. Surfaces shall be uniform texture, dry, and free from dust, grit, oil, grease, or any material which will adversely affect adhesion or appearance of the coating. Rough edges of metal, weld seams and sharp edges from scaffold lugs shall be ground to a curve.

2. Surfaces that have been cleaned, pretreated, and/or otherwise prepared for painting shall be given a coat of the first-coat material as soon as practicable prior to any deterioration of the prepared surface.

3. Hardware, accessories, plates, fixtures, and similar items in contact with coated surfaces shall be removed, masked, or otherwise protected prior to surface preparation and painting operations.

4. Exposed nails and other ferrous metals on surfaces to be coated shall be spot- primed with a metal primer compatible with the finish.

3.9 SANDBLASTING

A. All sandblasting shall be done in strict accordance with the referenced surface preparation specifications of the SSPC.

B. When items are to be shop-primed or shop-primed and finish-coated in the shop, surface preparation shall be as specified in this Section. The City shall have the right to witness, inspect, and reject any sandblasting done in the shop.

C. When sandblasting is performed in the field, care shall be taken to prevent damage to structures and equipment. Pumps, motors, and other equipment shall be shielded, covered, or otherwise protected to prevent the entrance of sand. No sandblasting may begin before the

City inspects and approves the protective measures. The Contractor shall repair or replace any damaged structures at no cost to the City.

D. After sandblasting, dust and spent sand shall be removed from the surfaces by brushing or vacuum cleaning.

3.10 APPLICATION OF PROTECTIVE COATINGS

A. Shop Coating: Fabricated metalwork and equipment that requires coating shall be shop-primed with specified primer.

1. Any such work delivered to the job site with any other shop coat shall either have this coating removed or shall be recoated with “universal-primer,” and the specified coating applied in the field.

2. Manufactured equipment with approved corrosion resistant factory finishes and galvanized finishes shall be exempt from this requirement.

B. APPLICATION OF FIELD COATINGS:
<EDIT/ENTER PROJECT SPECIFIC INFORMATION HERE FOR THIS SECTION>

1. Except where in conflict with the Manufacturer’s printed instructions, or where otherwise specified herein, the Contractor may use brush, roller, air spray, or so-called airless spray application; however, any spray painting must first have a short nap. Brushing or other suitable means shall coat areas inaccessible to spray coating or rolling.

2. The Contractor shall give special attention to the Work to ensure that edges, corners, crevices, welds, bolts, and other areas, as determined by the City, receive a film thickness at least equivalent to that of adjacent coated surfaces.

3. Prime coat shall be applied to all clean surfaces within a four (4) hour period of the cleaning, and prior to deterioration or oxidation of the surface, and in accordance with the manufacturer’s recommendations. Drift from sandblasting procedures shall not be allowed to settle on freshly painted surfaces.

4. All coatings shall be applied in dry and dust-free environment. No coating or paint shall be applied when the surrounding air temperature, measured in the shade, is below 40 degrees Fahrenheit. No coating or paint shall be applied to wet or damp surfaces and shall not be applied in rain, fog or mist, or when the relative humidity exceeds 90 percent. No coating or paint shall be applied when it is expected that the relative humidity will exceed 90 percent or that the air temperature will drop below 40 degrees Fahrenheit within eight (8) hours after the application of the coating or paint. Dew or moisture condensation should be

anticipated and if such conditions are prevalent, coating or painting shall be delayed to be certain that the surfaces are dry. The day's coating or painting shall be completed well in advance of the probable time of day when condensation will occur in order to permit the film sufficient drying time prior to the formation of moisture.

5. Each coat shall be applied evenly, at the proper consistency, and free of brush marks, sags, runs, and other evidence of poor workmanship. Care shall be exercised to avoid lapping paint on glass or hardware. Coatings shall be sharply cut to lines. Finished coated surfaces shall be free from defects or blemishes.

6. Care shall be exercised to prevent paint from being spattered onto surfaces from which such paint cannot be removed satisfactorily. Protective coverings shall be used to protect floors, fixtures, and equipment. Surfaces from which paint cannot be removed satisfactorily shall be painted or repainted as required to produce a finish satisfactory to the City.

7. Whenever two (2) coats of a dark colored paint are specified, the first coat shall contain sufficient powdered aluminum to act as an indicator of proper coverage, or the two (2) coatings shall be of a contrasting color.

8. Touch-up of all surfaces shall be performed after installation.

C. TIME OF COATING:

1. Sufficient time shall be allowed to elapse between successive coats to permit satisfactory recoating, but once commenced, the entire coating operation shall be completed without delay. No additional coating of any structure, equipment, or other items designated to be painted shall be undertaken until the previous coating has been completed for the entire structure, piece of equipment, or other items unless directed by the City.

3.11 TESTING AND INSPECTION – QUALITY CONTROL

A. Inspect all surfaces and adjoining work and report to the Engineer in writing any existing unsatisfactory conditions. No painting work shall be started until the unsatisfactory conditions are remedied.

B. Commencement of surface preparation and painting shall constitute the acceptance of existing conditions and any defects appearing in the painting work thereafter shall be by the Contractor at no additional cost.

C. Inspection Devices:

1. General: The Contractor shall furnish devices for inspection, until final acceptance of coating and painting, in good working condition for detection of holidays and measurement of dry film thickness of coatings and paints.

2. The Contractor shall also furnish thickness calibration plates certified by the U.S. Department of Commerce, National Bureau of Standards, to test accuracy of dry film thickness gauge and certified instrumentation to test accuracy. Dry film thickness gauges shall be available for the Contractor's use at all times until final acceptance of application.

B. The Contractor shall conduct dry film thickness measurements and electrical inspection of the coated surfaces with equipment furnished by the Contractor and shall recoat and repair as necessary for compliance with the Technical Specifications.

C. After repaired and recoated ferrous metals areas have cured, final inspection tests will be conducted by the Contractor with equipment provide by the Contractor.

<EDIT/ENTER PROJECT SPECIFIC INFORMATION HERE FOR THIS SECTION>

1. Coating thickness specified in mils on ferrous substrates will be measured with a nondestructive magnetic type dry film thickness gauge such as Elecometer manufactured by Gardner Laboratories, Inc.

2. Discontinuities, voids, and pinholes in the coatings will be determined with a nondestructive type electrical holiday detector.

3. Epoxy coatings and other thin film coatings will be checked for discontinuities and voids with a low voltage detector of the wet-sponge type, such as Model M1 as manufactured by Tinker and Rasor. Use a non-sudsing type wetting agent, such as Kodak Photo-Flo, which shall be added to the water prior to wetting the sponge.

4. A high-voltage, low-current, spark-type detector such as Model EP manufactured by Tinker and Rasor, shall be used for electrical inspection of only coal tar enamel.

5. Tape type coatings will be inspected for holidays using a device designed for use in detecting such flaws.

6. All pinholes shall be marked, repaired in accordance with the Manufacturer's printed recommendations and retested. No pinholes or other irregularities shall be permitted.

7. Film thickness discrepancies shall be measured and verified with a micrometer or other approved measuring instrument with five (5) readings taken every 100 square feet of painted surface.

8. Coatings not in compliance with the Technical Specifications will not be acceptable and shall be replaced and reinspected at Contractor's expense until the Technical Specifications are met.

D. On nonferrous surfaces, dry film thickness readings shall be taken at random locations with a Tooke Gauge at the rate of approximately five (5) readings per 100 square feet of surface. Grooves cut into coatings shall be repaired by application of all coats of paint or coating film being tested. The average of all readings for a given area or surface shall be within require dry film thickness range and no individual reading shall be more than 20 percent below the recommended dry film thickness. Any areas that are found to be below standard shall be marked and recoated to obtain proper film thickness.

3.12 CLEANUP

A. Upon completion of the Work, staging, scaffolding, drop cloths, and containers shall be removed from the Site or destroyed by the Contractor in an approved manner. Paint spots, oil, or stains upon adjacent surfaces shall be removed.

B. The Contractor shall clean the site in accordance with Section 017710 – Contract Closeout.

3.13 WARRANTY

A. All work shall be warranted for a period of <ENTER PROJECT SPECIFIC INFORMATION HERE> from date of acceptance of the project.

B. The City will notify the Contractor at least 30 days prior to the anniversary date and shall establish a date for the inspection. Any defects in the coating system shall be repaired by the Contractor at no additional cost to the City. Should a failure occur to 25% of the painted surface, either interior or exterior, the entire surface shall be cleaned and painted in accordance with these specifications.

C. Upon completion and acceptance by the City, the Contractor shall warranty the completed materials and workmanship from failure for <ENTER PROJECT SPECIFIC INFORMATION HERE>years.

END OF SECTION