

## SECTION 05910 – ORNAMENTAL METAL CLEANING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Stripping paint from metal.
  - 2. Removing dirt buildup on metal.
  - 3. Washing ornamental metal with and without detergents.
  - 4. Cleaning and polishing brass plate.
- B. Related Sections include the following:
  - 1. Division 5 Sections
- C. Unit Prices: Ornamental metal cleaning to be provided under unit prices are described in Division 1 Section "Unit Prices."

#### 1.3 SUBMITTALS

- A. Product Data: For each product indicated. Include recommendations for application and use. Include test reports and certifications substantiating that products comply with requirements.
- B. Samples for verification, before erecting the mockup, of the following:
  - 1. Each type of cleaner.
- C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Restoration program for each phase of the restoration and cleaning process, including protection of surrounding materials on the building and Project site during operations. Describe in detail the materials, methods, equipment, and sequence of operations to be used for each phase of the restoration and cleaning work.
  - 1. Product Data
  - 2. Work Plan
  - 3. Materials

The names, quantity represented, and intended use for proprietary brands of materials proposed to be substituted for the specified materials when the required quantity of a particular batch is 200 liters 50 gallons or less.

Manufacturer's current printed product description, material safety data sheets (MSDS) and technical data sheets for each product. Detailed mixing, thinning and application instructions, minimum and maximum application temperature, and curing and drying times shall be provided for each product submitted.

4. Qualifications  
A statement certified by the Contractor attesting that the experience and qualifications of the workers (journeymen) comply with the specifications.
5. Certificates  
Certificate stating that products proposed for use meet the VOC regulations of the local Air Pollution Control Districts having jurisdiction over the geographical area in which the project is located.
6. If alternative materials and methods to those indicated are proposed for any phase of restoration and cleaning work, provide a written description, including evidence of successful use on other comparable projects, and a testing program to demonstrate their effectiveness for this Project.

#### 1.4 QUALITY ASSURANCE

- A. Restoration Specialist: Engage an experienced ornamental metal cleaning firm that has completed work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance. The Contractor shall provide qualified workers trained and experienced in the preparation for painting of wood and metal surfaces in historic structures and shall submit documentation of 5 consecutive years of work of this type. A list of similar jobs shall be provided identifying when, where, and for whom the work was done. A current point-of-contact for identified references shall be provided.
  1. At Contractor's option, the work may be divided between 2 specialist firms: one for cleaning work and one for repair work.
  2. Field Supervision: Require restoration specialist firms to maintain an experienced full-time supervisor on the Project site during times that metal restoration and cleaning are in progress.
- B. Chemical Manufacturer Qualifications: A company regularly engaged in producing metal cleaners that have been used for similar applications with successful results, and with factory-trained representatives who are available for consultation and Project site inspection and assistance.
- C. Mockups: Prepare field samples for restoration methods and cleaning procedures to demonstrate aesthetic effects and qualities of materials and execution. Use materials and methods proposed for completed Work and prepare samples under same weather conditions to be expected during remainder of Work. Test adjacent non-metallic materials for possible reaction with cleaning and paint stripping materials.

1. Locate mockups on the building where directed by Architect.
  2. Metal Restoration: Prepare sample panels of 3 linear feet for each type of restoration proposed. Maintain the sample panel throughout the restoration to demonstrate the quality of materials and workmanship expected.
  3. Cleaning: Prepare sample approximately 3 linear feet in length for each type of surface condition.
    - a. Test cleaners and methods on samples of adjacent materials for possible adverse reactions, unless cleaners and methods are known to have a deleterious effect.
    - b. Allow a waiting period of not less than 7 days after completion of sample cleaning to permit a study of sample panels for negative reactions.
  4. Notify Architect 7 days in advance of the dates and times when samples will be prepared.
  5. Obtain Architect's approval of completed mockup submittal before starting the remainder of metal restoration and cleaning.
  6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
- C. Preconstruction Testing: Engage an independent testing agency experienced in performing the type of tests indicated and approved by Architect to perform preconstruction tests.
1. LOCATE INDEPENDENT TESTS IN SPEC.
- D. Source of Materials: Obtain materials for metal restoration from a single source for each type of material required to ensure a match of quality.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Carefully pack, handle, and ship marble units and accessories strapped together in suitable packs or pallets or in heavy-duty cartons.
- B. Deliver other materials to Project site in manufacturer's original and unopened containers, labeled with type and name of products and manufacturers.
- C. Comply with manufacturer's written instructions for minimum and maximum temperature requirements for storage.

ALL CLEANING REMOVES SOME SURFACE METAL AND PATINA. THEREFORE, USE CAUTION, AS EXCESSIVE CLEANING CAN REMOVE THE TEXTURE AND FINISH OF THE METAL.

THE CLEANING OR STRIPPING OF METALS MAY INVOLVE THE USE OF ABRASIVES, LIQUIDS OR SOLVENTS WHICH MAY SPLASH OR RUN OFF ONTO ADJACENT MATERIALS. TAKE SPECIAL CARE TO PROTECT ALL ADJACENT MATERIALS, AND DO NOT USE THIS PROCEDURE ON METALS OTHER THAN THOSE SPECIFIED IN THE SUMMARY.

BEFORE UNDERTAKING ANY PROJECT INVOLVING PAINT REMOVAL, APPLICABLE STATE AND FEDERAL LAWS ON LEAD PAINT ABATEMENT AND DISPOSAL MUST BE TAKEN INTO ACCOUNT AND CAREFULLY FOLLOWED. STATE AND FEDERAL

REQUIREMENTS MAY AFFECT OPTIONS AVAILABLE TO OWNERS ON BOTH PAINT REMOVAL AND REPAINTING. THESE LAWS, AS WELL AS ANY REQUIREMENTS PROHIBITING VOLATILE ORGANIC COMPOUNDS (VOCs), SHOULD BE REQUESTED FROM THE STATE HISTORIC PRESERVATION OFFICER IN EACH STATE. (From Preservation Brief 28, "Painting Historic Interiors"). REGULATORY INFORMATION MAY ALSO BE REQUESTED FROM THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REGIONAL OFFICE AND/OR THE STATE OFFICE OF ENVIRONMENTAL QUALITY.

## 1.6 REFERENCES

### AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)

ACGIH-02 (1997) Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices

### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1730 (1967; R 1993) Preparation of Aluminum and Aluminum-Alloy Surfaces for Painting

ASTM D 1731 (1967; R 1993) Preparation of Hot-Dip Aluminum Surfaces for Painting

ASTM D 3274 (1995) Evaluating Degree of Surface Disfigurement of Paint Films by Microbial (Fungal or Algal) Growth or Soil and Dirt Accumulation

ASTM D 3359 (1995a) Measuring Adhesion by Tape Test

ASTM D 4214 (1997) Evaluating Degree of Chalking of Exterior Paint Films

### THE SOCIETY FOR PROTECTIVE COATING (SSPC)

SSPC PA Guide 5 (1990) Guide to Maintenance Painting Programs

SSPC SP 1 (1982) Solvent Cleaning

SSPC SP 2 (1995) Hand Tool Cleaning

SSPC SP 3 (1995) Power Tool Cleaning

SSPC SP 5/NACE 1 (1994) White Metal Blast Cleaning

SSPC SP 6/NACE 3 (1994) Commercial Blast Cleaning

SSPC SP 7/NACE 4 (1994) Brush-Off Blast Cleaning

SSPC SP 10/NACE 2 (1994) Near-White Blast Cleaning

## 1.7 WORK PLAN

- A. The procedures proposed for the accomplishment of the work shall provide for safe conduct of the work, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, and coordination with other work in progress. The work plan shall include a Safety and Health plan describing procedures for handling monitoring, and disposition of VOCs and other hazardous and toxic materials. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations. The Contractor shall test the materials designated by the Contracting Officer.

## 1.8 PACKAGING, LABELING, AND STORING

- A. Paint removers, solvents, and other chemicals used for surface preparation shall be in sealed containers that legibly show the designated name, formula or specification number, quantity, date of manufacture, manufacturer's formulation number, manufacturer's directions including any warnings and special precautions, and name of manufacturer. Such materials shall be furnished in containers not larger than 20 liters; 5 gallons; they shall be stored in accordance with the manufacturer's written directions; and as a minimum stored off the ground, under cover, with sufficient ventilation to prevent the buildup of flammable vapors and at temperatures between 4 and 35 degrees C. 40 and 95 degrees F.

## 1.9 ENVIRONMENTAL CONDITIONS

- A. Unless otherwise recommended by the product manufacturer, the ambient temperature shall be between 7 and 35 degrees C 45 and 95 degrees F when applying paint removers, solvents, or other preparation materials.

## 1.10 SAFETY AND HEALTH

- A. Work shall comply with the ACCIDENT PREVENTION PLAN, including the Activity Hazard Analysis as specified in the CONTRACT CLAUSES. The Activity Hazard Analysis shall include analyses of the potential impact of surface preparation operations on personnel and on others involved in and adjacent to the work zone. Refer to Division 1 "Safety and Health".
  - 1. Work shall be coordinated to minimize exposure of building occupants, other Contractor personnel, and visitors to mists and odors from surface preparation and cleaning operations.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

1. GAF Corporation  
1361 Alps Road  
Wayne, NJ 07470  
201/628-4127
2. Flitz International, Ltd.  
821 Mohr Ave.  
Waterford, WI 53185  
414/534-5898
3. ProSoCo, Inc.  
755 Minnesota Avenue  
P.O. Box 1578  
Kansas City, KS 66117  
800/255-4255 or 913/281-2700

## 2.2 PRODUCTS

NOTE: Chemical products are sometimes sold under a common name. This usually means that the substance is not as pure as the same chemical sold under its chemical name. The grade of purity of common name substances, however, is usually adequate for stain removal work, and these products should be purchased when available, as they tend to be less expensive. Common names are indicated below by an asterisk (\*).

A. Mild detergent

-OR-

B. Household Ammonia:

1. Other chemical or common names include Ammonium Hydroxide; Ammonia water\*; Aqua ammonia\*.

-OR-

2. Mild Commercial Brass Cleaner (most brass cleaners will both clean and polish) such as "Simichrome", "Wenol", "Flitz" (Flitz International, Ltd.), or approved equal.

NOTE: "Simichrome", "Wenol", and "Flitz" are German manufactured cleaners that come in tubes. They are generally more expensive than the liquids and harder to find. They have a finer feel than the liquids, and are best used as an intermediary or finishing polish.

- C. Non-ionic detergent, such as "Zyfo" cleaner concentrate -a controlled suds, silicate buffered, non-ionic, rinseless-type synthetic detergent, containing no soap, free alkali, solvents, abrasives, acids, caustics or the like, "Igepal 630" (GAF Corporation) or approved equal.
- D. Chemical Paint Stripper: Thixotropic/alkaline formulation for removing paint coatings from ornamental metal work, such as "Sure Klean 509 Paint Stripper," (ProSoCo, Inc.), or approved equal.

- E. Chemical Cleaner: Manufacturer's standard strength acidic ornamental metal restoration cleaner, such as "Sure Klean 887 Stainless Steel Cleaner," (ProSoCo, Inc.), or approved equal.
- F. Protective Lacquer: Clear non-yellowing for protection of the finished metal surface.
- G. Liquid Strippable Masking Agent: Liquid, film forming, strippable masking material for protecting glass, and polished stone surfaces from damaging effect of acidic and alkaline cleaners, such as "Sure Klean Acid Stop," (ProSoCo, Inc.), or approved equal.
- H. Water for Cleaning: Clean, potable, free of oils, acids, alkalis, salts, and organic matter.
- I. Cleaning Pads: No. 4/0 fine steel wool or synthetic pads.

### 2.3 MATERIALS

- A. Supplementary Materials for Bronze:
  - 1. Bronze wool, extra fine, such as that manufactured by Brillo
  - 2. Corrosion Inhibitor, Benzotriazole (BTA) such as "Cobratec" (GAF Corporation), or approved equal
- B. Supplementary Materials for Cast Iron:
  - 1. 600 grit aluminum oxide paper, emery paper or fine steel wool
  - 2. Complexing agent such as "Versene", or approved equal
- C. Clean, potable water
- D. Toweling or rags, clean, lint-free

### 2.4 EQUIPMENT

- A. Buckets, molded rubber or plastic, such as the "Fortex" molded rubber pail - 12 or 14 quart size, or Rubbermaid
- B. Washing brushes: Available from local janitorial supply houses or hardware stores
  - 1. Tampico fiber set in a hardwood block
  - 2. "Whitewash brush" - ideal for most purposes
  - 3. "Parts washing" brush - useful for small areas and crevices
- C. Rubber gloves and rain gear, if desired
- D. Garden hose
- E. Eye and skin protection
- F. Heavy gloves and protective gear
- G. Soft natural bristle brushes

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. General: Comply with chemical cleaner manufacturer's written instructions for protecting building surfaces against damage from exposure to their products.
- B. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from injury resulting from Metal restoration work.
  - 1. Prevent chemical cleaning solutions from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be injured by such contact.
  - 2. Do not clean metal during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
  - 3. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
  - 4. Dispose of runoff from cleaning operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
  - 5. Erect temporary protection covers over pedestrian walkways and at points of entrance and exit for persons and vehicles that must remain in operation during course of marble restoration work.
  - 6. Provide ventilation to eliminate the spread of fumes to unaffected spaces.
  - 7. Protect unpainted metal from contact with alkali chemical cleaners by covering them either with liquid strippable masking agent or polyethylene film and waterproof masking tape.
- C. Protect adjacent surfaces from contact with chemical cleaners by covering them with a liquid strippable masking agent or polyethylene film and waterproof masking tape. Apply masking agent to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces.
- D. Surface Preparation For Brass Plate Cleaning:
  - 1. Before cleaning, determine if your brass surface is solid or plated:
    - a. A magnet will stick to the steel beneath brass plating; it will not stick to solid brass.
    - b. Solid brass can withstand much harsher treatment than brass plating can.

### 3.2 EXAMINATION

- A. Before proceeding with steps to clean brass, examine the surface(s) to determine the extent of the work required. Look for:
  - 1. Broken, cracked, missing, distorted or loose parts.
  - 2. Coating failures such as chips, losses, peeling, cracks, bubbling and wear. Corrosion - caused by moisture, deicing salts, acids, soils, gypsum plasters, magnesium oxychloride cements, ashes, clinkers and sulfur components.

### 3.3 METAL CLEANING WITH WATER

A. Fill one or two buckets with about two gallons of water.

NOTE: Water washing alone will remove most common dirt and grime; however, at times supplemental materials will be needed to remove the deposits.

1. For Bronze: Add BTA to wash water to make a 1 to 3% solution of BTA to water.

2. For Detergent Washing: Add 1 to 3 ounces of detergent per gallon of water.

B. Beginning at the top and gradually working down, scrub the metal surface lightly with the fiber brush to remove any superficial deposits. Take care to avoid scratching or otherwise damaging the protective coating.

C. Thoroughly rinse the surface with clean, clear water.

1. For Cast Iron: Rinse with 2% aqueous solution of "Versene".

D. Dry with clean, lint-free toweling or rags.

E. For tenacious mineral deposits or exudations of core material, treat locally with gentle abrasion using very fine bronze wool. Exercise great care to avoid damaging the coating and patina.

### 3.4 BRASS PLATE CLEANING

A. Brass is an alloy of copper and zinc. Brass-plate is a thin layer of brass bonded to steel. Solid brass is more durable than brass-plate and, therefore, can withstand more rigorous methods of cleaning.

B. Brass may be unfinished or lacquered. Architectural brass hardware and trim is generally maintained in a highly polished, "bright" finish.

1. Unfinished brass MUST be polished frequently in order to maintain its luster. All polishing, however, removes some brass.

2. Lacquered brass will usually last about 10 years and does NOT require frequent polishing.

3. Lacquer protects the brass finish from deterioration, though some brilliance of its surface characteristics is sacrificed. Removal and reapplication of the lacquer, however, will not harm the brass surface.

NOTE: WHEN CLEANING, TRY TO RETAIN THE BRASS PATINA, AS THIS PROTECTS THE BRASS FROM FURTHER CORROSION.

NOTE: BRASS PLATE IS ALMOST ALWAYS PROTECTED WITH A CLEAR COATING. CAUTION: DO NOT USE STEEL WOOL OR METAL SCRAPERS ON BRASS PLATE.

C. For unlacquered brass plate:

1. Clean with mild detergent or ammonia and a soft cloth. DO NOT USE ABRASIVES. Wear plastic gloves to prevent getting fingerprints on the surface.
2. Rinse thoroughly and dry with a clean, soft cloth. DO NOT BUFF BRASS-PLATE; THE PLATING WILL COME OFF.

D. For lacquered brass plate:

1. Clean using ONLY a mild detergent and water.

CAUTION: DO NOT USE AMMONIA-BASED CLEANERS ON LACQUERED BRASS. THEY WILL DETERIORATE THE COATING.

2. Rinse thoroughly and dry with a clean, soft cloth.

E. For brass plate that is heavily tarnished:

1. Use a mild commercial polish such as "Simichrome", "Wenol", "Flitz" (Flitz International, Ltd.), or approved equal.

NOTE: TEST POLISH FIRST IN A SMALL, INCONSPICUOUS AREA.

2. Wipe down cleaned and polished piece with lacquer thinner to remove all traces of cleaning solutions and polish.

### 3.5 DIRT REMOVAL

- A. Brush apply chemical cleaner to ornamental metal surface in the concentration recommended by the manufacturer.
- B. Agitate surface with either steel wool or synthetic cleaning pad. Follow direction of grain in metal. Do not scratch or abrade surface.
- C. Thoroughly sponge or cloth rinse surface with clean water to remove chemical cleaner and loosened dirt.
- D. Machine or hand polish metal where indicated with buffing wheel or soft cloth using polishing compound typically recommended as standard industry practice and as approved by the RHPO.
- E. Repeat process as required to produce desired effect.
- F. Wipe surface completely dry with clean soft cloths. Do not touch cleaned ornamental metal surfaces.

- G. Immediately apply two coats of protective lacquer finish to surface.

## PREPARATION OF HISTORIC WOOD AND METAL SURFACES FOR PAINTING

### 3.6 GENERAL REQUIREMENTS

- A. Methods used for preparation of historic wood and metal surfaces for painting shall be the gentlest possible to achieve the desired results. Historic substrate materials shall not be damaged or marred in the process of surface preparations. Samples of the existing paint finishes shall be collected and analyzed for the purpose of documentation or matching. Material and application requirements for paints are covered in Section 09900 PAINTING, GENERAL.

### 3.7 VENTILATION

- A. Interior work zones having a volume of 280 cubic meters 10,000 cubic feet or less shall be ventilated at a minimum of 2 air exchanges per hour. Ventilation in larger work zones shall be maintained by means of mechanical exhaust. Solvent vapors shall be exhausted outdoors, away from air intakes and workers. Return air inlets in the work zone shall be temporarily sealed before start of work until the prepared surfaces have dried. Operators and personnel in the vicinity of paint removal processes involving chemicals or mechanical action (sanding or blasting) shall wear respirators.

### 3.8 PROTECTION OF AREAS NOT TO BE PAINTED

- A. Items not to be painted which are in contact with or adjacent to painted surfaces shall be removed or protected prior to surface preparation and painting operations. Items removed prior to painting shall be replaced when painting is completed. Following completion of painting, workers skilled in the trades involved shall reinstall removed items. Surfaces contaminated by preparation materials shall be restored to original condition.

### 3.9 CLEANING OF SURFACES

- A. Surfaces to be painted shall be clean and free of grease, dirt, dust and other foreign matter before application of paint or surface treatments. After cleaning, surfaces shall exhibit a surface disfigurement rating of 7 or greater when evaluated in accordance with ASTM D 3274. Dirt and surface contaminants shall be cleaned by brush with solutions of water and detergent or trisodium phosphate, then rinsed clean with water and let dry. Surfaces on which mildew or other microbiological growth is present shall be cleaned with a detergent solution containing household bleach. Oil and grease shall be removed with clean cloths and cleaning solvents prior to mechanical cleaning. Cleaning solvents shall be of low toxicity with a flashpoint in excess of 38 degrees C. 100 degrees F. Cleaning shall be programmed so that dust and other contaminants will not fall on newly prepared or newly painted surfaces.

### 3.10 EXISTING PAINT

- A. Existing paint shall be tested for adhesion to substrate per ASTM D 3359, Test Method A and shall obtain a rating of 4 or better in order to be considered sound. Existing paint meeting this requirement may be considered a satisfactory base for repainting.

### 3.11 PAINT REMOVAL

- A. Flaking, cracking, blistering, peeling or otherwise deteriorated paint shall be removed by scraping with hand scrapers. After scraping, removal of large areas of paint or paint on architectural details shall be accomplished using sanders, heat guns or heat plates, or chemical paint removers. Paint shall be removed to bare substrate or first sound paint layer. Open flame heat devices shall not be used. Mechanical paint removal shall not damage or mar the substrate material.

- B. Chemical Paint Removers

Chemical paint removers shall be used in accordance with manufacturer's recommendations. If chemical strippers are used, substrate shall be neutralized after stripping to a pH of 5 to 8.5.

- C. Lead Paint

In preparation of lead-based painted surfaces for repainting, procedures described in Section 13281 LEAD HAZARD CONTROL ACTIVITIES shall be followed.

### 3.12 SURFACE PREPARATION

- A. After cleaning and removal of deteriorated paint, edges of remaining chipped paint shall be feather-edged and sanded smooth. Damaged areas such as, but not limited to, nail holes, cracks, chips, and spalls shall be repaired with suitable material to match adjacent undamaged areas. Slick surfaces shall be roughened. Rusty metal surfaces shall be cleaned per Spec section \_\_\_\_\_. Chalk shall be removed so that when tested in accordance with ASTM D 4214, the chalk resistance rating is no less than 8. New, proposed coatings shall be compatible with existing coatings. If existing surfaces are glossy, the gloss shall be reduced.

### 3.13 METAL SURFACES

- A. Metal surfaces shall be cleaned of foreign matter. Programs for preparation of metal shall be per SSPC PA Guide 5. Grease, oil, and other soluble contaminants shall be removed by solvent cleaning per SSPC SP 1. Surfaces shall be free from soils and corrosion; e.g. grease, oil, solder flux, welding flux, weld spatter, sand, rust, scale, and other contaminants that might interfere with the application of the new finish. Cleaning methods shall be the gentlest possible to achieve the desired result. Metals which are soft, thin, or exhibit fine detail shall not be abrasively cleaned. Evidence of corrosion or contamination on a previously cleaned surface shall be cause for recleaning prior to painting.

## B. Ferrous Surfaces

Ferrous surfaces that contain loose rust, loose mill scale, and other foreign substances shall be cleaned mechanically with hand tools according to SSPC SP 2, power tools according to SSPC SP 3 or by blast cleaning according to [SSPC SP 5/NACE 1], [SSPC SP 6/NACE 3], [SSPC SP 7/NACE 4], [SSPC SP 10/NACE 2]. Shop-coated ferrous surfaces shall be protected from corrosion by treating and touching up corroded areas immediately upon detection.

## C. Nonferrous Metallic Surfaces

Galvanized, aluminum and aluminum-alloy, lead, copper, and other nonferrous metal surfaces shall be solvent-cleaned in accordance with SSPC SP 1.

### 1. Aluminum

Aluminum surfaces shall be treated per ASTM D 1730 or ASTM D 1731. Steel wool, steel brushes and uninhibited caustic etching solutions, such as sodium hydroxide, shall not be used on aluminum.

### 2. Zinc

Zinc surfaces including zinc-coated substrates, shall be cleaned prior to painting as follows: degrease, soak in a mild and inhibited alkaline cleaner, rinse with clean overflowing water, clean anodically in an acid (e.g. 0.25 to 0.75 percent sulfuric acid), and rinse with clean overflowing water.

## 3.14 TIMING

Surfaces that have been cleaned, pretreated, and otherwise prepared for painting shall be given a coat of the specified first coat as soon as practical after such pretreatment has been completed, but prior to any deterioration of the prepared surface. Unless otherwise directed, the first coat primer shall be applied within 48 hours of surface preparation.

## 3.15 SURFACES TO BE PREPARED FOR PAINTING

Surfaces shall be prepared as specified and as shown in the painting schedule.

## 3.16 ADJUSTING/CLEANING

- A. During the work, remove from the site discarded cleaning and coating materials, rubbish, cans and rags at end of each work day.
- B. Upon completion of coating work, remove all protective coverings and coatings, and clean window glass and other coating-spattered surfaces. Remove spattered coatings by proper methods as recommended by coating manufacturer, using care not to damage adjacent surfaces.
- C. Cloths, cotton waste and other debris that might constitute a fire hazard shall be placed in closed metal containers and removed at the end of each day. Containers shall be removed from the site or destroyed in an approved manner. Preparation

materials and other deposits on adjacent surfaces shall be removed and the entire job left clean and ready for painting.

END OF SECTION 05910