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DIVISION 09 - FINISHES

SECTION 09960

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06/04

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\*\*\*\*\*

SECTION 09960

HIGH PERFORMANCE COATINGS  
06/04

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NOTE: Delete, revise, or add to the text in this section to cover project requirements. Notes are for designer information and will not appear in the final project specification.  
  
This section covers special coatings as required for harsh indoor locations or operations (any area subjected to chemical and/or abrasive action), and all outdoor installations..  
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PART 1 GENERAL

1.1 REFERENCES

\*\*\*\*\*  
NOTE: The following references should not be manually edited except to add new references. References not used in the text will automatically be deleted from this section of the project specification.  
\*\*\*\*\*

The publications listed below form a part of this section to the extent referenced:

ASTM INTERNATIONAL (ASTM)

ASTM E 380 (1993) Standard Practice for Use of the International System of Units (SI) (The Modernized Metric System)

THE SOCIETY FOR PROTECTIVE COATINGS (SSPC)

SSPC Paint 27 (1982) Basic Zinc Chromate - Vinyl Butyral Wash Primer  
SSPC SP 1 (1982) Solvent Cleaning  
SSPC SP 2 (1982) Hand Tool Cleaning  
SSPC SP 3 (1982) Power Tool Cleaning  
SSPC SP 5 (2000) White Metal Blast Cleaning NACE No. 1-2000

U.S. DEPARTMENT OF DEFENSE (DOD)

MS MIL-C-83286 (1995b) Coating Urethane, Aliphatic Isocyanate, For Aerospace Applications

MS MIL-P-24441 (Rev B) General Specification for Paint, Epoxy-Polyamide

MS MIL-P-24441/1 (1991c) Paint, Epoxy-Polyamide, Green Primer, Formula 150, Type I

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS TT-E-496 (2002) Enamel; Heat-Resisting (400 Degrees F, Black)

FS TT-P-28 (1992g) Paint, Aluminum, Heat Resisting (1200 Degrees F)

1.2 SUBMITTALS

\*\*\*\*\*

**NOTE: Review submittal description (SD) definitions in Section 01330 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control. Include a columnar list of appropriate products and tests beneath each submittal description.**

\*\*\*\*\*

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES in sufficient detail to show full compliance with the specification:

SD-01 Preconstruction Submittals

Material, Equipment and Fixture List shall be submitted in accordance with paragraph entitled, "Delivery, Handling and Storage," of this section.

SD-03 Product Data

Manufacturer's catalog data shall be submitted for the following items including manufacturer's name and identification. Data shall include detailed analysis of each special coating material required for the project, with all the coating constituents measured as percentages of the total weight of the coating. Manufacturer's data concerning application, thinning, and average coverage per gallon liter shall be included.

Heat-Resistant Coatings  
Epoxy Coatings  
Polyurethane Coatings  
Chlorinated-Rubber Coatings

SD-04 Samples

Sample Color Chips shall be submitted in accordance with paragraph entitled, "Delivery, Handling and Storage," of this section.

#### SD-07 Certificates

Certificates shall be submitted for following items showing conformance with the referenced standards contained in this section.

Heat-Resistant Coatings  
Epoxy Coatings  
Polyurethane Coatings  
Chlorinated-Rubber Coatings

#### 1.3 DELIVERY, HANDLING AND STORAGE

Special coating materials shall be delivered to the project in their original containers bearing manufacturer's name, descriptive label, and coating formulations. Containers shall be new and unopened.

Special coating materials shall be stored in tightly closed containers in a covered, well-ventilated area where they will not be exposed to excessive heat, fumes, sparks, flame, or direct sunlight. Water-based coatings shall be protected against freezing.

Solvents, thinners, and equipment cleaners shall be stored with the same care as the coating materials.

Material, Equipment and Fixture List shall be submitted consisting of a list of proposed equipment to be used in performance of construction work.

Three color chips at least 12-inches 300 millimeter square of each finish color and gloss as scheduled shall be submitted.

#### 1.4 FIELD TESTS

Government may take dry-film tests from time to time on finished surfaces. Additional coatings shall be applied to surfaces where there is less than the minimum specified dry-film thickness.

#### 1.5 PROTECTIONS AND SAFETY PRECAUTIONS

Adjacent materials and equipment shall be protected against damage from spillage, dripping, and spatter of coating materials. Building materials and equipment shall be left clean and with all damaged surfaces corrected. "WET PAINT" signs to indicate newly painted surfaces shall be provided.

Forced ventilation for interior spaces shall be provided during application and drying of coatings to prevent the buildup of toxic or explosive concentrations of solvent vapors.

Fire extinguishers of the required quantity and correct type shall be provided to combat flammable liquid fires.

Rags used to wipe up coating materials, solvents, and thinners shall be disposed of by drenching them with water and putting them in a covered metal container.

1.6 CLEANUP

Application equipment shall be cleaned promptly and thoroughly with a suitable solvent after each use and stored in a clean, covered, well-ventilated container.

At the end of each working day, discarded paint materials, rubbish, dirty rags, and other similar trash shall be removed from the project.

At the completion of the work, paint spots shall be removed from finish surfaces and the project left in a clean condition.

PART 2 PRODUCTS

2.1 HEAT-RESISTANT COATINGS

\*\*\*\*\*  
NOTE: Heat-resistant coatings are divided into four categories, with upper temperature limits of 400 degrees F, 600 degrees F, 800 degrees F and 1,200 degrees F. 204 degrees C, 316 degrees C, 427 degrees C and 649 degrees C.

Coatings above 1,200 degrees F 649 degrees C must be ceramic coatings. Generally, coatings applied to substrates where surface temperatures vary radically, will not have a long life span due to vehicle solid degradation and thermoshock of the metallic pigments. In areas such as this, flame deposition of sacrificial metal coatings must be considered.

\*\*\*\*\*

2.1.1 Category 1, 50 to 400 Degrees F 10 to 204 Degrees C

\*\*\*\*\*  
NOTE: Use the following for ferrous surfaces where surface temperature will not exceed 400 degrees F 204 degrees C.

\*\*\*\*\*

Coatings for surface temperatures not exceeding 400 degrees F 204 degrees C shall be alkyd resin-based material using ASTM E 380 and conforming to FS TT-E-496, Type II, as modified. Coatings shall be applied in not less than two coats with a dry-film thickness of not less than 4 mils 0.102 millimeter.

First coat shall be an alkyd resin, zinc-pigmented material with the resin solids and zinc pigment not less than 80 percent of the total weight of the material.

White and color pigmented finish coats shall be an alkyd resin-based material with the resin solids and pigments not less than 85 percent of the total weight of the material. Pigments shall be heat-stable materials, formulated to colors as scheduled.

Black-pigmented finish coats shall be an alkyd resin, carbon-black pigmented material with resin solids and pigments not less than 50 percent of the total weight of the material.

Aluminum pigmented finish coats shall be an alkyd resin-based material with resin solids and pigments not less than 50 percent of the total weight of the material.

2.1.2 Category 2, 300 to 600 Degrees F 149 to 316 Degrees C

\*\*\*\*\*  
**NOTE: Use the following for ferrous surfaces where  
surface temperature will not exceed 600 degrees F  
316 degrees C.**  
\*\*\*\*\*

Coatings for surface temperatures not exceeding 600 degrees F 316 degrees C shall be based on modified silicone and silicone-based resins. Coatings shall be applied in not less than two coats with a dry-film thickness of not less than 3 mils 0.076 millimeter.

First coat shall be a silicone-based resin zinc-pigmented material with the resin solids and zinc pigment not less than 80 percent of the total weight of the material.

Color pigmented finish coats shall be silicone-based resin material with the resin solids and pigments not less than 80 percent of the total weight of the material. Pigments shall be heat-stable materials, formulated to colors as scheduled.

Black-pigmented finish coat shall be a silicone-based resin carbon-black pigmented material with resin solids and pigments not less than 50 percent of the total weight of the material.

Aluminum-pigmented finish coats shall be modified, silicone-based-resin material with the resin solids and pigments not less than 50 percent of the total weight of the material.

2.1.3 Category 3, 600 to 800 Degrees F 316 to 427 Degrees C

\*\*\*\*\*  
**NOTE: Use the following for ferrous surfaces where  
surface temperature will not exceed 800 degrees F  
427 degrees C.**  
\*\*\*\*\*

Coatings for surface temperatures not exceeding 800 degrees F 427 degrees C shall be a modified silicone or a silicone-based material. Coatings shall be applied in not less than two coats with a dry-film thickness of not less than 3 mils 0.076 millimeter.

First coat shall be a silicone-based resin, zinc-pigmented material with the resin solids and zinc pigment not less than 80 percent of the total weight of the material.

Black-pigmented finish coat shall be a silicone-based resin, carbon-black pigmented material with resin solids and pigments not less than 50 percent of the total weight of the material.

Aluminum-pigmented finish coat shall be a modified, silicone-based-resin material with the resin solids and pigments not less than 50 percent of the total weight of the material.

2.1.4 Category 4, 800 to 1,200 Degrees F 427 to 649 degrees C

\*\*\*\*\*  
**NOTE: Use the following for ferrous surfaces where surface temperature will not exceed 1,200 degrees F 649 degrees C.**  
\*\*\*\*\*

Coatings for surface temperatures not exceeding 1,200 degrees F 649 degrees C shall be an aluminum-pigmented, silicone-resin-based material using ASTM E 380 and conforming to FS TT-P-28, as modified.

Coating shall be applied in not less than two coats with a dry-film thickness of not less than 2 mils 0.051 millimeter.

Coating pigment shall contain a minimum of 28 percent aluminum based on the total weight of the material. Vehicle shall contain a minimum of 22 percent silicone resin and a maximum of 49 percent of volatile thinners and driers based on the total weight of the material.

2.2 EPOXY COATINGS

\*\*\*\*\*  
**NOTE: Epoxy resin coatings must be used where surfaces to be coated require high corrosion resistance, chemical resistance, bond strength, UV resistance, and toughness.**

**Amine-cured epoxy coatings have higher resistance to chemical attack and better color retention than polyamide-cured epoxy coatings. Polyamide-cured epoxy coatings have higher water resistance and bond strength than amine-cured coatings.**

2.2.1 General

Epoxy coatings shall conform to MS MIL-P-24441, as modified.

\*\*\*\*\*  
**NOTE: Dry-film thickness given shall be considered minimum and may be revised as required to suit conditions and surface use.**  
\*\*\*\*\*

Vehicle resins for finish coats shall be based on a polyamide-cured, epoxy-resin material. Finish coats shall be applied with a dry-film thickness of not less than 4 mils 0.102 millimeter per coat. Finish color and gloss shall be as indicated.

2.2.2 Concrete Surface Coatings

Coatings on concrete surfaces shall be applied in not less than three coats. Prime coat shall be based on an epoxy-resin material as recommended by the coating manufacturer for the substrate to be coated and the end use of the coated surfaces. Prime coat shall fill concrete surface pores with a total film thickness of not less than 2 mils 0.051 millimeter. Finish coats shall be an epoxy-based coating as specified.

2.2.3 Masonry Surfaces Coatings

Coatings on masonry surfaces shall be a masonry block filler and not less than two finish coats. Block filler shall be based on a polyvinyl acetate or epoxy-resin material as recommended by the coating manufacturer for the substrate to be coated and the end use of the coated surface. Block filler shall fill surface pores with a total dry-film thickness of not less than 7 mils 0.175 millimeter. Finish coats shall be an epoxy-based coating as specified.

2.2.4 Ferrous and Galvanized Metal Surface Coatings

Coatings on ferrous and galvanized metal surfaces shall be a prime coat and not less than two finish coats. Prime coat shall be based on an epoxy-resin material with a metallic-zinc pigment as recommended by the coating manufacturer for the substrate to be coated and the end use of the coated surface. Resin solids and zinc pigment shall not be less than 80 percent of the total weight of the coating material. Prime coat shall be applied with a total dry-film thickness of not less than 4 mils 0.102 millimeter. Finish coats shall be epoxy-based coatings as specified.

2.2.5 Aluminum Surface Coatings

Coatings on aluminum surfaces shall be a prime coat and not less than two finish coats. Prime coat shall be epoxy polyamide conforming to MS MIL-P-24441/1. Prime coat shall be applied with a total dry-film thickness of not less than 4 mils 0.102 millimeter. Finish coats shall be aliphatic polyurethane using ASTM E 380 and conforming to MS MIL-C-83286.

2.3 POLYURETHANE COATINGS

\*\*\*\*\*

**NOTE: Polyurethane-based coatings must be used where surfaces to be coated require high abrasion resistance, good flexibility and chemical resistance, UV resistance, and must be a two-part, prepolymer, catalytic-cured resin material.**

**The two-part prepolymer, catalytic-cured, resin based materials must be used for heavy-duty coatings where abrasion resistance and chemical resistance are required. Catalytic-cured resins are formulated as clear coatings and in a limited range of pigmented coatings.**

\*\*\*\*\*

2.3.1 General

Polyurethane coatings shall use ASTM E 380 and conform to MS MIL-C-83286, as modified and as specified.

\*\*\*\*\*

**NOTE: Dry-film thickness given shall be considered minimum and may be revised as required.**

\*\*\*\*\*

Vehicle resins for finish coats shall be based on a two-part, prepolymer, catalytic-cured, polyurethane material. Catalytic-cured coatings shall be applied with a total dry-film thickness of not less than 10 mils 0.25

millimeter per coat. Finish color and gloss shall be as indicated on the schedules.

### 2.3.2 Concrete Surface Coatings

\*\*\*\*\*  
**NOTE: Policy is to avoid coating of exposed  
concrete unless it is considered aesthetically  
desirable.**  
\*\*\*\*\*

Coatings on concrete surfaces shall be applied in not less than three coats. Prime coat shall be based on a polyvinyl acetate, an epoxy-ester or a polyurethane resin material as recommended by the coating manufacturer for the substrate to be coated and the end use of the coated surfaces. Prime coat shall fill surface pores with a total dry-film thickness of not less than 2 mils 0.051 millimeter. Finish coats shall be a polyurethane-based material as specified.

### 2.3.3 Masonry Surface Coatings

Coatings on masonry surfaces shall be a masonry block filler and not less than two finish coats. Block filler shall be based on a polyvinyl-acetate or epoxy-ester resin material as recommended by the coating manufacturer for the substrate to be coated and the end use of the coated surface. Block filler shall fill surface pores with a total film thickness of not less than 7 mils 0.175 millimeter. Finish coats shall be a polyurethane-based material as specified.

### 2.3.4 Ferrous and Galvanized Metal Surface Coatings

Coatings on ferrous and galvanized metal surfaces shall be applied in not less than three coats. Prime coat shall use ASTM E 380 and conform to MS MIL-P-24441/1 or a polyurethane-resin material as recommended by the coating manufacturer for the substrate to be coated and the end use of the coated surfaces. Prime coat shall be applied with a film thickness of not less than 2 mils 0.051 millimeter. Finish coats shall be a polyurethane-based material as specified.

### 2.3.5 Aluminum Surface Coatings

Coatings on aluminum surfaces shall be applied in not less than three coats. Prime coat shall use ASTM E 380 and conform to MS MIL-P-24441/1 or a polyurethane-resin material as recommended by the coating manufacturer for the substrate to be coated and the end use of the coated surfaces. Prime coat shall be applied with a film thickness of not less than 2 mils 0.051 millimeter. Finish coats shall be a polyurethane-based material as specified.

### 2.3.6 Wood Surface Coatings

Coatings on wood surfaces shall be applied in not less than three coats. Prime coat shall be based on a polyurethane-resin material as recommended by the coating manufacturer for the substrate to be coated and the end use of the coated surfaces. Prime coat shall be applied with a film thickness of not less than 5 mils 0.125 millimeter. Finish coats shall be a polyurethane-based material as specified.

## 2.4 CHLORINATED-RUBBER COATINGS

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**NOTE:** Chlorinated-rubber-based coatings must be used where surface to be coated requires high resistance to water, salt spray, moist gases, and inorganic acids at 75 degrees F 24 degrees C.

Chlorinated rubber resins cannot be used in the unmodified state; they tend to be deteriorated by heat and ultraviolet light. Chlorinated-rubber resins are generally modified with phenolic resins.

Chlorinated rubber coatings must be based on modified, chlorinated-rubber, phenolic-resin materials. Coatings are formulated as grey and white coating with a wide range of tints for white base material.

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### 2.4.1 General

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**NOTE:** Dry-film thickness given shall be considered minimum and may be revised to suit conditions and surface use.

\*\*\*\*\*

Vehicle resins for finish coats shall be based on a modified, chlorinated-rubber, phenolic-resin material. Coating material shall contain not less than 20 percent chlorinated rubber resin, based on the total weight of the material. Finish coats shall be applied with a dry-film thickness of not less than 3-mils 0.076 millimeter per coat. Finish coating color shall be as indicated.

### 2.4.2 Concrete Surface Coatings

\*\*\*\*\*

**NOTE:** Policy is to avoid coating of exposed concrete unless it is considered aesthetically desirable.

\*\*\*\*\*

Coatings on concrete surfaces shall be applied in not less than three coats. Prime coat shall be based on a chlorinated-rubber resin material as recommended by the coating manufacturer for the substrate to be coated and the end use of the coated surfaces. Prime coat shall fill concrete surface pores with a total film thickness of not less than 2 mils 0.051 millimeter. Finish coats shall be chlorinated-rubber-based coatings as specified.

### 2.4.3 Masonry Surface Coatings

Coatings on masonry surfaces shall be a masonry block filler and not less than two finish coats. Block filler shall be based on an epoxy-ester resin material as recommended by the coating manufacturer for the substrate to be coated and the end use of the coated surface. Block filler shall fill surface pores with a total film thickness of not less than 7 mils 0.175 millimeter. Finish coats shall be chlorinated-rubber-based coatings as specified.

#### 2.4.4 Ferrous and Galvanized Metal Surface Coatings

Coatings on ferrous and galvanized metal surfaces shall be a prime coat and not less than two finish coats. Prime coat shall use ASTM E 380 and conform to MS MIL-P-24441/1, with a pigment as recommended by the coating manufacturer for the substrate to be coated and the end use of the coated surface. Prime coat shall be applied with a dry-film thickness of not less than 3 mils 0.076 millimeter. Finish coats shall be chlorinated rubber-based coatings as specified.

#### 2.4.5 Aluminum Surface Coatings

Coatings on aluminum surfaces shall be a prime coat and not less than two finish coats. Prime coat shall use ASTM E 380 and conform to MS MIL-P-24441/1 or a modified, chlorinated-rubber, alkyd-resin material with pigment as recommended by the coating manufacturer for the substrate to be coated and end use of the coated surface. Finish coats shall be chlorinated-rubber-based coatings as specified.

### PART 3 EXECUTION

#### 3.1 SURFACE PREPARATION

\*\*\*\*\*

**NOTE: A coating can provide its function only as long as it is in intimate contact with the surface itself. Therefore, the surface must be as clean as possible to minimize the presence of contaminants which may interfere with or destroy the adhesion between the coating and the surface.**

**Select from the following paragraph headings and paragraphs to suit the surface to be coated.**

\*\*\*\*\*

##### 3.1.1 Concrete Surfaces

Concrete surfaces scheduled to be coated shall be free of dirt, dust, oil, grease, efflorescence, loose chalk and other loose material, or foreign matter that might interfere with the coating bond.

Form oil, grease, and other oily contaminants shall be removed by scrubbing the surface with a trisodium phosphate and water solution. After cleaning, the surface shall be treated with a 5 percent to 10 percent solution of muriatic acid to etch the surface. After application, surfaces shall be neutralized and washed down with clean water.

Efflorescence shall be removed, before painting, by wire brushing and applying a 5- to 10-percent solution of muriatic acid. After application, surfaces shall be neutralized and washed down with clean water.

Large cracks, holes, and other damaged areas shall be patched with a cement-sand grout. Grout shall be allowed to age for not less than 14 calendar days before application of coatings.

##### 3.1.2 Masonry Surfaces

Masonry surfaces scheduled to be coated shall be free of dirt, dust, oil,

grease, efflorescence, loose chalk and other loose material, or foreign matter which may interfere with the coating bond.

### 3.1.3 Ferrous Metals

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**NOTE: When abrasive blasting with silica sand is performed, protective equipment required by NIOSH (National Institute for Occupational Safety and Health) must be used, to assure safety.**

The only respirator suitable for use when using silica sand is Type CE, pressure-demand, abrasive blast supplied air respirator, with a protection factor of 2000.

When silica sand is not used as the blasting agent, and when a protection factor of 25 (loose fit hood/helmet) will provide adequate protection than Type CE, continuous flow, abrasive blast supplied air respirator shall be used.

\*\*\*\*\*

Ferrous metals shall be cleaned in accordance with SSPC SP 5 using wet-sand blasting or vacuum-blast cleaning equipment. Surfaces shall be primed promptly after cleaning.

After cleaning, ferrous surfaces shall be coated with an epoxy coating using ASTM E 380 and conforming to MS MIL-P-24441.

### 3.1.4 Galvanized Surfaces

Galvanized surfaces scheduled to be painted shall be solvent cleaned in accordance with SSPC SP 1. Rusted and highly soiled surfaces shall be cleaned in accordance with SSPC SP 2 or SSPC SP 3. Care shall be taken not to damage or remove galvanizing.

After cleaning, galvanized surfaces shall be treated with a metal pretreatment coating applied in accordance with SSPC Paint 27 and coated with an epoxy coating using ASTM E 380 and conforming to MS MIL-P-24441.

### 3.1.5 Aluminum Surfaces

Aluminum and aluminum-alloy surfaces scheduled to be painted shall be solvent cleaned to remove oil, grease, soil, and other foreign matter. Soiled surfaces shall be cleaned with a stiff bristle brush or aluminum wool.

After cleaning, aluminum surfaces shall be coated with an epoxy coating using ASTM E 380 and conforming to MS MIL-P-24441.

### 3.1.6 Wood Surfaces

\*\*\*\*\*

**NOTE: Wood surfaces to be finished must be coordinated with Division 6, "Wood and Plastics."**

\*\*\*\*\*

Exterior wood surfaces shall be clean and dry before application of

coatings. Cracks and nail holes shall be filled with putty or plastic wood after priming.

Surfaces shall be brushed, scraped, sanded, and cleaned as may be required to produce a surface free of dust, dirt, oil, grime, sap streaks, splinters, projections, and rough areas. Exposed knots shall be cleaned and sealed with a knot sealer before painting.

\*\*\*\*\*

**NOTE: The following paragraphs are based on the assumption that premium-grade materials will be installed as specified in Division 6, "Wood and Plastics." If custom- or economy-grade materials are specified, surface preparation may have to be more extensive.**

**Delete the following if new interior wood surfaces are not required.**

\*\*\*\*\*

Interior wood surfaces shall be clean and dry before application of coatings. Nails shall be countersunk and the nail holes filled with putty or plastic wood after priming.

\*\*\*\*\*

**NOTE: Finish sanding of wood surfaces depends on the coatings to be applied. First paragraph is for interior wood surfaces to be finished with pigmented coatings. Second paragraph is for interior wood surfaces to be finished with natural or stained finishes.**

\*\*\*\*\*

Surfaces finished with pigmented coatings shall be finished smooth with Grade 0 or finer sandpaper. Sanding shall be done in the direction of the wood grain.

Surfaces finished with transparent coatings shall be finished smooth with Grade 00 or finer sandpaper. Sanding shall be done in the direction of the wood grain.

Loose dirt, dust, and sandings shall be completely removed by brushing, vacuum cleaner, tack rag, or other approved method before application of finish coatings.

### 3.2 COATING MATERIAL PREPARATION

#### 3.2.1 General

Coating materials shall be mixed and prepared in accordance with the coating manufacturer's directions for the particular material and coat to be applied. Materials which are not in actual use shall be kept in closed containers.

Coating materials that have been mixed with an automatic shaker shall be allowed to stand to let air bubbles escape, then given a final hand mixing before application. Materials shall be stirred so as to produce a mixture of uniform density and shall be stirred at frequent intervals during application to prevent skinning. Film which may form on the surface of the

material shall not be stirred into the material. Film shall be removed and strained, if necessary.

### 3.2.2 Thinning

Thinning shall be done in accordance with coating manufacturer's directions for the particular material and coat.

### 3.2.3 Tinting

Prime and intermediate coats of paint shall be a slightly different tint from the finish coat to facilitate identification of each coat. Tinting shall be done by the coating manufacturer and clearly identified as to color and coat.

## 3.3 APPLICATION OF COATING MATERIALS

### 3.3.1 General

Exterior painting shall not be performed in damp or rainy weather. Interior painting shall not be allowed until the building is enclosed and has thoroughly dried out. No painting will be allowed below 50 degrees F 10 degrees C and above 95 degrees F 35 degrees C. Painting application shall be in accordance with the coating manufacturer's recommendations, and as specified.

Application of coatings shall be done by skilled applicators. Coatings shall be applied to clean and properly prepared surfaces. Coatings shall be applied carefully with clean, high-quality application equipment. Sufficient time shall be allowed between coats to ensure complete drying and curing. Surfaces shall be sanded and dusted between coatings, as required, to produce a surface free of visible defects. High gloss coatings and clear finishes shall be lightly sanded between coats to ensure bond of following coats.

Coats shall be applied to the surfaces in an even film. Cloudiness, spotting, holidays, laps, application marks, runs, sags, and other similar surface imperfections will not be acceptable. Defective coating applications shall be removed and recoated as directed.

Coating lines such as wainscots shall be sharp, true, and well-defined. Tape may be used to establish coating lines, providing tape is removed before ragging or sawtooth edges form.

Surfaces, including edges, corners, crevices, welds, and other similar changes in surface plane, shall receive a dry-film thickness not less than specified.

### 3.3.2 Brush Application

Brushes shall be clean and the proper size and type for high-quality application of the specified coating materials. Slow-dry coatings shall be brushed out. Quick-dry coatings shall be brushed only enough to spread out evenly.

### 3.3.3 Roller Application

Roller covers shall be clean and of the proper nap length, nap texture, and material for high-quality application of the specified coating materials.

Roller application shall be done carefully and shall be equivalent in all respects to the same coats applied by high-quality brush application.

#### 3.3.4 Spray Application

[Spray application of coatings will not be allowed.]

[Spray application equipment shall be limited to airless-spray equipment and electrostatic-spray equipment. Equipment shall be clean and operated by workmen skilled in high quality application of coating materials.

Spray application of coatings shall be limited to finish coats on metal frame works, siding, decking, wire mesh, and other surfaces where hand work would be inferior. Sprayed coatings shall be carefully applied and equivalent in all respects to the same coats applied by high quality brush application. Each spray coat shall be permitted to cure before the succeeding coat is applied. Doubling back with application equipment, for the purpose of building up film thickness of two coats in one operation, will not be permitted.

Surfaces adjacent to areas to be spray coated shall be covered to prevent damage from overspray, coating rebound, and spray drift.]

#### 3.4 ACCEPTANCE PROVISIONS

##### 3.4.1 Repairing

Damaged and unacceptable portions of completed work shall be removed and replaced with new work to match adjacent surfaces at no additional cost to the Government.

##### 3.4.2 Cleaning

Surfaces of the work, and adjacent surfaces soiled as a result of the work, shall be cleaned. Equipment, surplus materials, and rubbish from the work shall be removed from the site.

-- End of Section --