****

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA/KSC-09 90 00.00 98 (July 2020)

Preparing Activity: NASA

Superseding
NASA/KSC-09 90 00.00 98 (November 2014)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2023

****

SECTION 09 90 00.00 98

PAINTING AND COATING
07/20

****

NOTE: This specification covers the requirements for the general requirements, materials, surface preparation, material preparation, and coating systems for exterior and interior on-site painting.

Factory-finished and semifinished surfaces are specified in their respective sections. Apply field finish to factory-semifinished surfaces and check for compatibility.

The following areas and surfaces are not generally painted except as noted or specified:

Elevator and duct shafts, concealed spaces, concealed pipes and ducts

Exterior brick, stone, and concrete surfaces are not generally painted, unless considered aesthetically desirable.

Nonferrous metal and stainless steel surfaces, unless required for aesthetic reasons

Acoustic tile and acoustic plaster surfaces

Materials with acceptable factory-finished surfaces

Concrete floors

Structural steel encased in concrete and structural steel concealed by interior building finish, except where subject to high humidity or corrosive conditions

Indicate on drawings and paint schedules exterior and interior surfaces to be painted and the finish coating color and gloss.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing

this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable items(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Recommended changes to a NASAKSC Master Specification Section should be submitted as a Criteria Change Request (CCR) to the appropriate Technical Proponent (TP) through the SpecsIntact Help Desk.

****

PART 1 GENERAL

1.1 REFERENCES

****

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a RID outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

****

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C920	(2018) Standard Specification for Elastomeric Joint Sealants

MASTER PAINTERS INSTITUTE (MPI)

MPI 47	(2016) Alkyd, Interior, Semi-Gloss (MPI Gloss Level 5)
MPI 50	(2015) Primer Sealer, Latex, Interior

SOCIETY FOR PROTECTIVE COATINGS (SSPC)

SSPC Paint 25	(1997; E 2004) Zinc Oxide, Alkyd, Linseed Oil Primer for Use Over Hand Cleaned Steel, Type I and Type II
SSPC SP 2	(2018) Hand Tool Cleaning
SSPC SP 3	(2018) Power Tool Cleaning

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FED-STD-595	(Rev C; Notice 1) Colors Used in Government Procurement

1.2 SUBMITTALS

****

NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project.

A “G” following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a “G”. Only delete an existing “G” if the submittal item is not complex and can be reviewed through the Contractor’s Quality Control system. Only add a “G” if the submittal is sufficiently important or complex in context of the project.

An "S" following a submittal item indicates that the submittal is required for the Sustainability Notebook to fulfill federally mandated sustainable requirements in accordance with Section 01 33 29 SUSTAINABILITY REPORTING.

****

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Exterior Painting Materials[; G]

Interior Painting Materials[; G]

Manufacturer's Standard Color Charts[; G]

SD-07 Certificates

Safety Data Sheets[; G]

Exterior Painting Materials[; G]

Interior Painting Materials[; G]

SD-08 Manufacturer's Instructions

Manufacturer's Instructions[; G]

1.3 QUALITY CONTROL

Submit manufacture's catalog data for each coating material, including designated name, formula or specification number, manufacturer's instructions and name of manufacturer. Detail data analysis of each coating material required, with constituents measured as percentages of the total weight of coating; and details of application, thinning, and average coverage per liter gallon.

1.3.1 Contractor Personnel Qualification

Ensure personnel assigned to the work have had adequate previous experience in the successful application of paints and coatings similar to those specified.

1.3.2 Color Charts

Submit manufacturer's standard color charts for architectural painting materials showing manufacturer's recommended finish colors. Submit three color chips of each color and gloss schedule.

1.3.3 Manufacturer's Instructions

Submit manufacturer's instructions for architectural coatings showing printed instructions covering thinning, mixing, handling, and applying.

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver materials in their original, unbroken containers bearing the manufacturer's name and product identification.

Store all paint materials, thinners, and cleaners in tightly closed containers in a covered, well-ventilated area where they are not exposed to excessive heat, sparks, flame, or direct sunlight. Protect water-based materials against freezing.

Submit safety data sheets to Contracting officer.

1.5 WARRANTY

Guarantee all work against defects in labor and material for a period of [_____] year.

PART 2 PRODUCTS

The following are suggested paint manufacturers and their products. When approved, other paint manufacturers' products of equal quality will be considered. Ensure all thinners and cleaners are products of the coating manufacturer. Ensure primer and finish coats of the paint system are products of the same manufacturer.

2.1 MATERIALS

2.1.1 Exterior Products

Submit the following Exterior painting materials information: Caulk/Sealer, Latex Block Filler, Masonry Primer/Sealer, Enamel, Wood Primer, Inhibitive Metal Primer, Acrylic Latex, and Wash Primer.

	FEDERAL SPECIFICATION	PITTSBURGH	SHERWIN WILLIAMS	GLIDDEN
Caulk/Sealer	ASTM C920	Chem Caulk	Elastomeric	--
Latex Block Filler	[_____]	6-7	B25W46	5317
Masonry Primer/Sealer	[_____]	6-3	A 5V2	5212
Enamel	[_____]	1-934	A 2	1400
Wood Primer	[_____]	1-870	Y24W20	3651
Inhibitive Metal Primer	SSPC Paint 25	--	B50N2	310
Acrylic Latex flat emulsion	[_____]	6-650	A80	3525
Wash Primer	[_____]	97-687/8	P-60G2	--

2.1.2 Interior Products

Submit the following Interior painting materials information: Latex Block Filler, Masonry Primer/Sealer, Wood Primer, Inhibitive Metal Primer, Pigmented Primer/Sealer, Enamel, Acrylic Latex, and water-base Acrylic Epoxy.

	FEDERAL SPECIFICATION	PITTSBURGH	SHERWIN WILLIAMS	GLIDDEN
Latex Block Filler	[_____]	6-7	B25W46	5317
Masonry Primer/Sealer	[_____]	6-3	A 5V2	5212
Wood Primer	[_____]	1-870	Y24W20	3651
Inhibitive Metal Primer	SSPC Paint 25	--	B50N2	310
Pigmented Primer/Sealer	MPI 47	6-2	B28W1	3416
Enamel	MPI 50	6-90	A 40	4600
Acrylic Latex	[_____]	6-510	B42	3700
Water-base Acrylic Epoxy	--	16 line	B70/B60V15	--

PART 3 EXECUTION

Manufacturer's recommendations for surface preparation, thinning, mixing, handling, and applying his product are considered a part of this specification. In the event of conflict between the requirements of this specification and the manufacturer's recommendations this specification takes precedence.

3.1 SURFACE PREPARATION

3.1.1 Protection

Remove, reinstall or provide acceptable protection for, all hardware, accessories, lighting and electrical components, factory-finished materials, plumbing fixtures and fittings, and any other materials that become splattered or damaged by the painting work. Post "WET PAINT" signs to indicate newly painted surfaces.

Take every precaution to prevent damage to adjacent buildings, shrubs and motor vehicles. Cut back shrubs to 300 mm 12-inches from structures to be painted. Provide roping, barricading or covering to preclude damage to personal and real property during surface preparation and painting. Ensure 24-hour advance warning when spray painting,and coordinate with the Contracting Officer or his representative. Post signs to ensure parking arrangements are made. Repair affected damaged surfaces at no additional cost to the Government.

3.1.2 General Surface Preparation

Ensure all surfaces are clean, dry, and free from contaminants and foreign matter. Remove mildew and chalking and thoroughly sterilize the surface. Remove all chipped, peeling, or blistered paint and spot-prime the surface. Dull and roughen hard, glossy surfaces to ensure proper adhesion.

3.1.3 Earth and Masonry Interface

Hand remove where applicable, soil to expose 100 mm 4 inches of cement block wall below grade level. Ensure exposed cement block receives the same treatment under this specification as the cement block above grade level. Replace soil to restore the original grade no sooner than 48 hours after the block painting is complete.

3.1.4 Metal Surfaces

Remove all heavy rust and loose mill scale from steel in accordance with [SSPC SP 2, Hand Tool Cleaning] [SSPC SP 3, Power Tool Cleaning].

Remove by hand or power tool cleaning, minor aluminum oxide film and corrosion.

Treat previously unpainted galvanized and aluminum surfaces with wash primer in accordance with manufacturer's instructions.

3.1.5 Wood Surfaces

Seal knots with a mixture of equal parts of shellac and alcohol (or product approved equal). Fill nail holes, cracks, and other defects with plastic wood or putty. Back-prime concealed surfaces before installation.

3.1.6 Masonry Surfaces

Ensure all surfaces are free from form-release compounds, laitance, and other contaminants.

Repair large cracks, voids and other major surface imperfections before painting. Prepare all repairs to cracks and openings in cement block or masonry surfaces that require a "V" type opening and ensure the top of the "V" is one-half the depth of the crack or opening. Remove all non-tenacious material, then fill the "V" using [Portland cement grout as described and formulated in [_____]. Moisten substrates to receive mortar.] [Epoxy gel grout in accordance with manufacturer's instructions.]

3.1.7 Plaster and Drywall

Ensure all surfaces are clean and dry. Fill cracks and other surface imperfections with spackling compound and sanded smooth.

3.1.8 Sealing

Seal all cracks, crevices, and joints such as those along the perimeter of windows and doors with a paintable [polysulfide] [latex] type caulking conforming to ASTM C920.

3.2 APPLICATION

3.2.1 General

Accomplish all painting in accordance with the painting schedule.

Do not perform exterior painting in rainy weather or when rain is imminent. Do not apply paints or coatings when the temperature or humidity is outside the limits recommended by the manufacturer.

Apply paints and coatings by brush, roller, or airless spray.

Ensure each coat of material applied is free from runs, sags, bubbles, and foreign contaminants; variations in color, gloss and texture; dry overspray, brush, and roller marks; holidays (missed areas); or other evidence of poor application.

Thoroughly work all paints and coatings into corners and crevices.

Neatly "cut-in" paints and coatings around doors, windows, ceilings, etc.

Protect all newly painted surfaces from damage.

3.2.2 Procedures

Apply coatings as follows:

a. Thoroughly stir material to produce a uniform mixture.

b. Thin material for workability and improved spray characteristics, but only according to the manufacturer's instructions.

c. Apply each coat uniformly at the minimum wet-film thickness specified by the manufacturer.

d. Give special attention when coating sharp edges, corners, and crevices to ensure complete coverage.

e. Ensure finish coats show good hiding characteristics and uniform appearance.

3.2.3 Exterior Surfaces

Prime metal surfaces with alkyd primer in accordance with [[_____]] [manufacturer's instructions], and topcoated with two coats enamel in accordance with [[_____]] [manufacturer's instructions].

Allow paint to dry overnight before re-coating.

Prime wood surfaces with alkyd primer in accordance with [[_____]] [manufacturer's instructions], and topcoated with two coats [acrylic emulsion] [enamel] in accordance with [[_____]] [[_____]] [manufacturer's instructions]. Allow primer and enamel to dry overnight before top-coating. Allow a four hour drying time between coats of acrylic emulsion paint.

Ensure masonry surfaces have two topcoats of acrylic emulsion paint applied and both coatings are in accordance with [[_____]] [manufacturer's instructions]. Tint first coat with a universal color (number) to allow quick identification between the first and second coats. Allow for a four hour drying time between coats. Apply coating with a fibered roller or airless sprayer. Using appropriate brushes, cut-in at junction of the wall and roof, window framing, door framing and piping.

3.2.4 Interior Surfaces

Ensure wood and metal surfaces have two coats of enamel paint applied in accordance with [[_____]] [manufacturer's instructions]. Allow for a [four] [twelve] [_____] hour drying time between coats. Surfaces to be painted with enamel paint include any metal or wood paintable surface. Items to be painted include (but are not limited to) doors, jambs, handrails, and grilles.

Apply 2 coats of [latex] [epoxy] paint to masonry surfaces in accordance with [[_____]] [manufacturer's instructions] on wall surfaces, ceilings and appurtenances (excluding vinyl cove base) with colors other than that specified. Allow for a [four] [twelve] [____] hour drying time between coats. Apply one coat of [latex] [epoxy] on areas where existing color is the same as that specified. Patch and spot prime or touch up before painting areas requiring only one coat of [latex] [epoxy] coverage. Allow for a four hour minimum drying time between the spot primed coat and the finish coat. Surfaces painted with [latex] [epoxy] paint include concrete, concrete masonry, gypsum drywall systems and plaster. Items to be painted include (but are not limited to) walls, ceilings, pipes and columns.

3.2.5 Spot-Painting

Allow spot-painting to correct damaged surfaces only when touchup area blends into the surrounding finish. Otherwise, re-coat the entire area. Accomplish touchup using the same method of application as was used to apply the original material.

3.3 FIELD QUALITY CONTROL

3.3.1 Inspection

Provide for inspection of work to ensure that the requirements of this section have been fulfilled.

3.3.2 Cleanup

Remove all paint or coating splatter and spills from floors, adjacent walls, hardware, and all other finished surfaces.

Leave the work area clean and free from all rubbish and accumulated material.

3.4 SCHEDULES

3.4.1 Exterior Paint Schedule

Ensure colors are in accordance with [FED-STD-595] [manufacturer's product name/number].

SURFACE	PRIMER	FINISH COAT	FINISH COLOR AND SHEEN
Exterior masonry (rough/ porous)	Latex block filler	Acrylic emulsion latex	[_____]
Exterior masonry (smooth)	Alkali-resistant primer	Acrylic emulsion latex	[_____]
Exterior wood	Exterior wood primer	Enamel/acrylic emulsion latex	[_____]
Exterior metal	Exterior metal primer	Enamel	[_____]

3.4.2 Interior Paint Schedule

Ensure colors are in accordance with [FED-STD-595] [manufacturer's product name/number].

SURFACE	PRIMER	FINISH COAT	FINISH COLOR AND SHEEN
Interior masonry (rough/porous)	Latex block filler	Latex/water-base acrylic epoxy	[_____]
Interior masonry (smooth)	Pigmented sealer	Latex/water-base acrylic epoxy	[_____]
Interior	Pigmented	Latex/water-base	[_____]

SURFACE	PRIMER	FINISH COAT	FINISH COLOR AND SHEEN
plaster	sealer	acrylic epoxy	
Interior drywall	Pigmented sealer	Latex/water-base acrylic epoxy	[_____]
Interior wood	Interior wood primer	Enamel	[_____]
Interior metal	Interior metal primer	Enamel	[_____]

-- End of Section --