

Krebs Engineering, Inc.
2100 Riverhaven Drive, Suite 100
Birmingham, AL 35244
205-987-7411
April 15, 2021

ADDENDUM NO. 2

CONTRACT NO.: 20021

OWNER: Madison Utilities

PROJECT: Quarry Water Treatment Plant Expansion

BID DATE: April 21, 2021

TO: ALL PROSPECTIVE CONTRACTORS AND SUPPLIERS

The changes, modifications, and/or additions covered by and set forth in this Addendum No. 2 shall become part of and be incorporated in the Contract Documents for the above referenced project:

BIDDING REQUIREMENTS TO BE REVISED BY ADDENDUM:

AD2.1 INSTRUCTIONS TO BIDDERS

1. Sealed Proposals will be received by Madison Utilities, 101 Ray Sanderson Drive, Madison, AL 35758 where bids will be received, until **April 28, 2021 at 10:00 a.m. CDT**, for furnishing all labor, tools, materials and equipment, and for doing the work of construction, according to the Contract Documents, as described in the Advertisement for Bids and in the Specifications, Drawings, and other Contract Documents. No bids will be received after the time set forth hereinabove; and the Proposals will be publicly opened and read aloud.
2. All questions from Contractors and Vendors shall be sent to the Engineer no later than Friday, April 23, 2021 at 5:00 p.m. CDT. No questions will be answered submitted after this date.

SPECIFICATIONS TO BE REVISED BY ADDENDUM:

AD2.2 PROPOSAL FORM

1. Revise Item No. 4, WTP Landscaping, cost from \$15,000 to \$50,000.

AD2.3 SECTION 01 22 00 – UNIT PRICES

1. Page 01 22 00-2; 1.1 UNIT PRICES
 - a. Add the following: "E. The unit prices for undercutting and backfill are for unforeseen site conditions. The undercutting and backfill requirements for the existing Finished Water Pump Station and Clearwell demolition as stated in

GTEC's recommendations are to be included as part of the lump sum base bid for the project."

AD2.4 SECTION 09 91 00 – PAINTING

1. Remove this spec from the Contract Documents in its entirety.

AD2.5 SECTION 09 96 00 – HIGH-PERFORMANCE COATINGS

1. Remove this spec in its entirety and replaced with the attached.

AD2.6 SECTION 22 05 19 – FLOW METERS

1. Page 22 05 19-2; 2.1 MANUFACTURERS
 - a. Revise 2.1.A to read: "3. Wyatt Engineering"

AD2.7 SECTION 22 05 23 – VALVES

1. Page 22 05 23-3; 2.1 MANUFACTURERS
 - a. Revise 2.1.B.5 to read: "e. Kennedy"
2. Page 22 05 23-9; 2.5 CHECK VALVES – RESILIENT HINGE TYPE
 - a. Revise 2.5.L.1 to read: "1. The exterior and interior of the valve shall be coated with an ANSI/NSF 61 approved fusion bond or two part epoxy coating."
3. Page 22 05 23-10; 2.8 SLOW CLOSING AIR/VACUUM VALVES
 - a. Revise 2.8.J.1 to read: "1. The exterior and interior of the valve shall be coated with an ANSI/NSF 61 approved fusion bond or two part epoxy coating."

AD2.8 SECTION 33 11 16.10 – METAL PIPE AND FITTINGS FOR WATER UTILITIES

1. Page 33 11 16.10-3; 2.5 MANUFACTURERS
 - a. Add the following: "G. All ductile iron pipe, fittings, restraining gaskets, and miscellaneous appurtenances shall be manufactured in the United States. AIS Certifications will be required with these submittals."

AD2.9 SECTION 44 42 56.13 – WATER SUPPLY AND TREATMENT PUMPS

1. Page 44 42 56.13-3; 2.1 MANUFACTURERS
 - a. Add the following to A.1: "d. Floway"

DRAWINGS TO BE REVISED BY ADDENDUM:

AD2.10 Remove Sheet C3-06, PARTIAL YARD PIPING PLAN, and replace with attached.

AD2.11 Remove Sheet C3-07, PARTIAL YARD PIPING PLAN, and replace with attached.

- AD2.12 Remove Sheet C5-02, EX. FILTER BUILDING DEMOLITION/MODIFICATION PLAN, and replace with attached.
- AD2.13 Revise Fittings List Bubble 41 on Sheet C5-03, to read: "8" ST. STL. BUTTERFLY VALVE (AIR SERVICE)" and Bubble 47 to read: "6" ST. STL. BUTTERFLY VALVE (AIR SERVICE)". These changes shall carry forward on all C5 series sheets.
- AD2.14 Remove Sheet E0-02, ELECTRICAL NOTES & LIGHT FIXTURE SCHEDULE, and replace with attached.
- AD2.15 Revise Note 1 on Panelboard Schedule LP-6 on Sheet E1-03 to read: "1. Provide integral 240KA (per phase) surge protection device."
- AD2.16 Add the following note to Panelboard Schedule LP-3 on Sheet E1-04 to read: "1. Provide integral 240KA (per phase) surge protection device."
- AD2.17 Remove Sheet E2-01, SITE ELECTRICAL DEMOLITION PLAN, and replace with attached.
- AD2.18 Remove Sheet E3-01, SITE ELECTRICAL PLAN, and replace with attached.

Krebs Engineering, Inc.

By 
Caleb L. Leach, P.E.
Associate

THIS IS THE LAST PAGE

Attachments to Addendum No. 2 preceding this page:

- SECTION 09 96 00 – HIGH PERFORMANCE COATINGS – 14 pages
- C3-06 – PARTIAL YARD PIPING PLAN – 1 page
- C3-07 – PARTIAL YARD PIPING PLAN – 1 page
- C5-02 – EX. FILTER BUILDING DEMOLITION/MODIFICATIONS PLAN – 1 page
- E0-02 – ELECTRICAL NOTES & LIGHTING FIXTURE SCHEDULE – 1 page
- E2-01 – SITE ELECTRICAL DEMOLITION PLAN – 1 page
- E3-01 – SITE ELECTRICAL PLAN – 1 page

A total of 24 pages or sheets of drawings (including this page) have been included in Addendum No. 2.

General Contractors are requested to return this page as an acknowledgement that you have received this Addendum by e-mail. This will NOT be mailed. A copy of this Addendum may be picked up at the office of the Engineer.

Return to Return to Alabama Graphics Digital Plan Room.

Received By _____

Contractor _____

Date _____

SECTION 09 96 00 - HIGH-PERFORMANCE COATINGS

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 surface preparation and field application of high-performance coating systems to items and surfaces scheduled.

1.3 DEFINITIONS

- A. Standard coating terms defined in ASTM D 16 apply to this Section.
- B. SSPC - The Society for Protective Coatings.
- C. NACE - National Association of Corrosion Engineers.

1.4 SUBMITTALS

- A. General: Submit the following according to Conditions of the Contract and Specification Sections.
- B. Product Data: For each paint system indicated. Include block fillers and primers.
 - 1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 - 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
- C. Certification by manufacturer that products supplied comply with requirements indicated that limit the amount of VOCs in coating products.
- D. Samples for Initial Selection: For each type of topcoat product indicated.
- E. Samples for Verification: For each type of coating system and in each color and gloss of topcoat indicated.
 - 1) Submit Samples on rigid backing, 8 inches square.
 - 2) Step coats on Samples to show each coat required for system.
 - 3) Label each coat of each Sample.
 - 4) Label each Sample for location and application area.

- F. Product List: For each product indicated, include the following:
- 1) Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2) Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.
 - 3) VOC content.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label with the following information:
1. Name or title of material.
 2. Product description (generic classification or binder type).
 3. Manufacturer's stock number and date of manufacture.
 4. Contents by volume, for pigment and vehicle constituents.
 5. Thinning instructions.
 6. Application instructions.
 7. Color name and number.
 8. Handling instructions and precautions.
 9. VOC Content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
1. Protect materials from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and applying coatings.

1.6 PROJECT CONDITIONS

- A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 45 and 95 deg F and is expected to remain between 45 and 95 deg F for at least two hours after application (or according to the manufacturer's recommendation).
- B. Do not apply coatings in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
1. Allow wet surfaces to dry thoroughly and attain temperature and conditions specified before proceeding with or continuing coating operation.
 2. Work may continue during inclement weather only if areas and surfaces to be coated are enclosed and temperature within the area can be maintained within limits specified by manufacturer during application and drying periods.
 3. All surface preparation and painting work is performed under the protective guidelines and requirements of OSHA "Safety and Health Regulations for Construction", latest revision, as set forth in the Federal Register, and that all such protection is the responsibility of the Contractor and shall be provided at the

Contractor's expense.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products indicated in the coating system descriptions.
- B. Manufacturers' Names: The following manufacturers are referred to in the coating system descriptions by shortened versions of their names shown in parenthesis:
 - 1. Induron Coatings, Inc. (Induron).
 - 2. Tnemec Company, Inc. (Tnemec).

2.2 COATINGS MATERIALS, GENERAL

- A. Material Compatibility: Provide primers, undercoats, and finish-coat materials that are compatible with one another and substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's highest grade of the various high-performance coatings specified. Materials not displaying manufacturer's product identification are not acceptable.
 - 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. VOC Classification: Provide high-performance coating materials, including primers, undercoats, and finish-coat materials, that have a VOC classification of 450 g/L or less.
- D. No claim of the Contractor concerning the unsuitability of the material specified or his inability to produce first class work with the same, will be entertained, unless such claim is made in writing to the Engineers before the Contract is signed.

2.3 COLORS

- A. Colors: As selected by Owner from manufacturer's full range.

2.4 HIGH-PERFORMANCE COATING SYSTEMS

- A. MPI Standards: Provide products that comply with MPI standards indicated and are listed in "MPI Approved Products List."
- B. Material Compatibility:
 - 1. Provide materials for use within each coating system that are compatible with one

another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a coating system, provide products recommended in writing by manufacturers of topcoat for use in coating system and on substrate indicated.
 3. Provide products of same manufacturer for each coat in a coating system.
- C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction [and, for interior coatings applied at project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24)].
1. Flat Paints and Coatings: 50 g/L.
 2. Nonflat Paints and Coatings: 150 g/L.
 3. Primers, Sealers, and Undercoaters: 200 g/L.
 4. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: 250 g/L.
 5. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
 6. Pre-Treatment Wash Primers: 420 g/L.
 7. Floor Coatings: 100 g/L.
 8. Shellacs, Clear: 730 g/L.
 9. Shellacs, Pigmented: 550 g/L.
- D. Low-Emitting Materials: Interior coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- E. General: Outline of coating work follows (with number of coats shown in parenthesis):
- F. All Exposed New Piping; outdoors, inside buildings, tunnels, galleries, vaults (11.0-16.0 mils DFT):
1. Primer
 - a. Induron Perma-Clean II Epoxy (4.0 -6.0 mils DFT) (1)
 - b. Tnemec N140-1211 Pota-Pox Plus (4.0 -6.0 mils DFT) (1)
 - c. Approved Equivalent
 2. Intermediate Coat
 - a. Induron Perma Clean II Epoxy (3.0 – 5.0 mils DFT) (1)
 - b. Tnemec Series 66 Epoxoline (3.0 – 5.0 mils DFT) (1)
 3. Finish Coat
 - a. Indurane Indurathane 6600 Plus (2.0 – 3.0 mils DFT) (1)
 - b. Tnemec Series 1095 Endura-Shield (2.0 – 3.0 mils DFT) (1)
 - c. Approved Equivalent
- G. All Exposed Existing (Previously Painted) Piping; outdoors, inside buildings, tunnels, galleries, vaults (7.0-11.0 mils DFT):

1. Spot Primer
 - a. Induron Induramastic 85 (3.0 – 5.0 mils DFT) (1)
 - b. Tnemec Series 135 Chembuild (3.0 – 5.0 mils DFT) (1)
 - c. Approved Equivalent

2. Full Prime
 - a. Induron Perma Clean II Epoxy (2.0 – 3.0 mils DFT) (1)
 - b. Tnemec Series 27 Typoxy (2.0 – 3.0 mils DFT) (1)
 - c. Approved Equivalent

3. Finish Coat
 - a. Induron Indurathane 6600 Plus (1)
 - b. Tnemec Series 1094 Endura-Shield (1)
 - c. Approved Equivalent

- H. Previously Painted Interior Ductile Iron – Continuously Sweating Conditions (8.0-12.0 mils DFT), applied by brush or roller
 1. Spot Prime
 - a. Tnemec Series 133 ProTuff (4.0-6.0 mils)
 - b. Approved Equivalent

 2. Full Prime
 - a. Tnemec Series 138 ProTuff (4.0-6.0 mils)
 - b. Approved Equivalent

 3. Finish Coat
 - a. Tnemec Series 138 ProTuff (4.0-6.0 mils)
 - b. Approved Equivalent

- I. All Metal Work, Shapes, Beams, Columns, Motors, Pumps, Equipment, Gear Motors, Valves, Valve Stands, Valve Operators and Similar Items (except where items are immersed in liquid) (7.5-11.5 mils DFT):
 1. Prime
 - a. Induron MC 67 Indurazinc (2.5 – 3.5 mils DFT) (1)
 - b. Tnemec Series 91 H2O Hydro-Zinc (2.5 – 3.5 mils DFT) (1)

 2. Intermediate Coat
 - a. Induron Perma Clean II Epoxy Primer (3.0-5.0 mils DFT) (1)
 - b. Tnemec Series 66 Epoxoline (3.0 -5.0 mils DFT) (1)

 3. Finish Coat
 - a. Induron Indurethane 6600 Gloss Enamel (2.0 – 3.0 mils DFT)(1)

- b. Tnemec Series 1095 Endura-Shield (2.0 – 3.0 mils DFT) (1)
- J. Valves, Shafting, Guides, Brackets, Gates, Piping Immersed in Liquid (coated to 1'0" above liquid level) (14.5-19.5 mils DFT):
 - 1. Primer
 - a. Induron MC 67 Indurazinc (2.5 – 3.5 mils DFT) (1)
 - b. Tnemec Series 91 H2O Hydro-Zinc (2.5 – 3.5 mils DFT) (1)
 - 2. Intermediate Coat
 - a. Induron – AquaClean Epoxy (4.0 – 6.0 mils DFT) (1)
 - b. Tnemec Series 20 HS Pota-Pox (4.0 – 6.0 mils DFT) (1)
 - 3. Finish Coat
 - a. Induron – AquaClean Epoxy (4.0 – 6.0 mils DFT) (1)
 - b. Tnemec Series 20HS Pota-Pox (4.0 – 6.0 mils DFT) (1)
- K. Equipment, Beams, Drive bases and Similar Equipment exposed over basins and at greater than 1'0" above liquid level (5.5-9.5 mils DFT):
 - 1. Primer
 - a. Induron MC 67 Indurazinc (2.5 – 3.5 mils DFT) (1)
 - b. Tnemec Series 91 H2O Hydro-Zinc (2.5 – 3.5 mils DFT) (1)
 - 2. Intermediate Coat
 - a. Induron Perma Clean II Epoxy (3.0-5.0 DFT) (1)
 - b. Tnemec 66 Epoxoline (3.0-5.0 DFT) (1)
 - 3. Finish Coat
 - a. Induron Indurethane 6600 Gloss Enamel (2.0 – 3.0 mils DFT) (1)
 - b. Tnemec 1095 Endura-Shield (2.0 – 3.0 mils DFT) (1)
- L. Potable Water Immersion Service – Refurbished Existing Filters:
 - 1. Primer
 - a. Tnemec Series 91 H2O Hydro-Zinc (2.5–3.5 mils)
 - b. Induron Approved Equivalent
 - 2. Stripe Coat
 - a. Tnemec Series N140-1255 Pota-Pox Plus (applied by brush) (2.0-4.0 mils)
 - b. Induron Approved Equivalent
 - 3. Finish Coat
 - a. Tnemec Series 22 Epoxoline (25.0-35.0 mils)

- b. Induron Approved Equivalent

M. New CMU, Interior (Minimum Total DFT of 6.0 Excluding Block Filler):

- 1. Block Filler
 - a. Polyfill Epoxy Block Filler (60-80 sq. ft. / gal DFT)
 - b. Tnemec 130 Envirofill (60-80 sq. ft. / gal DFT)
- 2. Intermediate
 - a. PermaClean II Epoxy (4.0-6.0 DFT)
 - b. Tnemec 113 Tneme-Tufcoat (4.0-6.0 DFT)
- 3. Finish
 - a. Induron Permastic LV Polyurethane (2.5 – 3.0)
 - b. Tnemec 297 Enviro-Glaze (2.0-3.0 DFT)

N. Wood – Interior and Exterior :

- 1. Primer
 - a. Induron AC 301 Wood Primer (2.0 – 3.0 mils DFT)
 - b. Tnemec 10-99W Primer (2.0 – 3.0 mils DFT)
- 2. Intermediate
 - a. Induron Aquanaut II (2.0 – 3.0 mils DFT)
 - b. Tnemec 1029 Enduratone (2.0-2.0 DFT)
- 3. Finish
 - a. Induron Aquanaut II (2.0 – 3.0 mils DFT)
 - b. Tnemec 1029 Enduratone (2.0-2.0 DFT)

O. Overheads – Interior Steel, Concrete, Wood, etc.:

- 1. 1st Coat
 - a. Induron Aquanaut Primer (2.0 – 4.0 mils DFT)
 - b. Tnemec 115 Uni-Bond DF (2.0 – 4.0 mils DFT)
- 2. 2nd Coat
 - a. Induron Aquanaut Low Luster (2.0 – 4.0 mils DFT)
 - b. Tnemec 115 Uni-Bond DF (2.0 – 4.0 mils DFT)

P. Guard chains, supports and brackets not immersed in liquid and other miscellaneous ironwork items specified to be galvanized shall not be painted.

Q. Certain items such as control center sections, control cubicles and panel boards are specified to be furnished with baked-on enamel or other factory finish, and shall not be

painted. Should finish of these items, however, be scarred or otherwise damaged, the items shall be touched up if possible or completely refinished, as required by the Engineer.

- R. Brass, bronze, copper and aluminum or equipment components fabricated from these materials shall not be painted.
- S. Where surfaces are specified to be coated with coal tar epoxy, total dry film thickness of coating shall not be less than 16 mils.

2.5 COLOR COATING SCHEDULE

- A. Color coding and identification of piping shall be in accordance with American National Standards Institute Standard ANSI A13.1-1975. The colors shall generally match the existing piping. The Owner will make final color selection.

PART 3 - EXECUTION

3.1 GENERAL

- A. The Contractor shall have on the project site the following testing equipment. Equipment shall be in calibration and proper working order. Equipment shall be used in accordance with the manufacturers' instructions or as directed by the Engineer. The Engineer shall be notified of time of testing so that he might be present to witness testing.
 1. Sling Psychrometer: Relative humidity and dew point readings shall be taken at intervals throughout the days work. Readings shall be taken at the start of the mornings work, mid day and afternoon. Should environmental conditions change, additional reading shall be taken to assure that coatings are being applied under the conditions as outlined by the coatings manufacturer.
 2. Surface Temperature Thermometer: Surface temperatures shall be taken in areas where work is being performed. Surface temperature shall be that as specified by the coatings manufacturer.
 3. Replica Tape & Micrometer Testex X-Course Replica Tape shall be employed to determine the surface profile of blasted surfaces. Surface profile shall be as specified.
 4. Dry Film Thickness Measurements: Dry film thickness reading shall be taken with a properly calibrated (per the manufacturer's instructions) Type 1 (magnetic) or Type 2 (electromagnetic) instrument. Dry film thickness reading will be taken and recorded in the in a frequency and manner as dictated by the Engineer.

3.2 EXAMINATION

- A. With Applicator present, examine substrates and conditions under which high-performance coatings will be applied, for compliance with coating application requirements.

1. Apply coatings only after unsatisfactory conditions have been corrected and surfaces to receive coatings are thoroughly dry.
 2. Start of application is construed as Applicator's acceptance of surfaces within that particular area.
- B. Coordination of Work: Review other Sections in which primers or other coatings are provided to ensure compatibility of total systems for various substrates. On request, furnish information on characteristics of specified finish materials to ensure compatible primers.
1. If a potential incompatibility of primers applied by others exists, obtain the following from the primer Applicator before proceeding:
 - a. Confirmation of primer's suitability for expected service conditions.
 - b. Confirmation of primer's ability to be top coated with materials specified.
 2. Notify Engineer about anticipated problems before using the coatings specified over substrates primed by others.

3.3 PREPARATION

- A. General: Remove plates, machined surfaces, and similar items already in place that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and coating.
1. After completing coating operations, reinstall items that were removed; use workers skilled in the trades involved.
 2. Prior to application of primer, surfaces shall be prepared to receive specified coating system in compliance with manufacturer's recommendations and specifications of Steel Structures Painting Council as indicated in Schedule below.
- B. Cleaning: Before applying high-performance coatings, clean substrates of substances that could impair bond of coatings.
1. Remove oil and grease before cleaning per SSPC-SP1 solvent cleaning.
 2. Schedule cleaning and coating application so dust and other contaminants from cleaning process will not fall on wet, newly coated surfaces or contaminate previously cleaned surfaces.
 3. Sprinkle floors to lay the dust if necessary to prevent dust from falling on wet paint.
- C. Surface Preparation: Clean and prepare surfaces to be coated according to manufacturer's written instructions for each substrate condition and as specified.
1. Provide barrier coats over incompatible primers or remove primers and reprime substrate.
 2. Ferrous-Metal Substrates: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances per SSPC-SP1 solvent cleaning (Relocated Filters)
 - a. Blast-clean steel surfaces as recommended by coating manufacturer and

according to SSPC-SP 10 Near White Blast Cleaning.

- b. Touch up bare areas and shop-applied prime coats that have been damaged. Wire brush, solvent clean, and touch up with same primer as the shop coat.
 - c. Steel surfaces not to be immersed in liquid shall receive one coat of rust-inhibitive epoxy primer.
 - 1) Such surfaces shall be prepared for shop coating in accordance with Commercial Blast Cleaning (SSPC-SP6).
 - 2) After receipt of such components, surfaces of components shall be prepared for finish painting by wire brushing (SSPC-SP2) or by brush-off blasting (SSPC-SP7).
 - d. Cast or ductile iron surfaces not to be immersed in liquid shall be prepared for painting by wire brushing (SSPC-SP2) or by brush-off blasting (SSPC-SP7). Where cast or ductile iron items are received on the job with a prime coat, cleaning shall be as specified hereinabove, and patch-coat shall be applied as required.
 - 1) Patch coat and finish coats shall be compatible with prime coat. Where cast or ductile iron items (such as motor housings, stands and similar items) are received on the job with finish coats already applied, cleaning shall be in accordance with The Society for Protective Coatings (SSPC) Specifications SSPC-SP1, SSPC-SP2, SSPC-SP7, as required.
 - 2) Wash primer coat and finish coat shall be applied in accordance with the color schedule selected by the Owner; and shall be compatible with the factory finish.
3. Previously Painted Ferrous Metals and Ductile Iron
- a. Surfaces shall be free of residual deposits of grease, rust, scale, dirt, dust, and oil. All surfaces shall be power washed (minimum 3,500 psi with 0° rotating nozzle) to remove all chalk, dust, dirt, loose paint, loose rust, as well as any other foreign matter. All areas cleaned to bare metal of where corrosion is present shall be cleaned in accordance with SSPC-SP 11 Power Tool Cleaning to Bare Metal. All edges shall be feathered. All surfaces shall be in a suitable condition for the specified coating system.
4. Cast-In-Place and/or Pre-cast Concrete Surfaces
- a. Allow concrete to cure for not less than 30 days prior to painting. Remove loose particles with stiff brush.
 - b. Remove dirt, scale, efflorescence, powders, laitance, parting compounds, and other foreign matter.
 - c. Wash stains caused by weathering or corroding metals with a sodium meta silicate solution after thoroughly wetting with clean, clear water; allow surface to thoroughly dry.
 - d. Fill small surface pock marks and air holes with a suitable fill material. Thoroughly brush or rub over surface and let dry for not less than 24 hours before paint application.
 - e. Concrete which will be coated and will be placed in immersion, vapor zone or secondary containment service shall be mechanically abraded in accordance with SSPC-SP 13, ICRI CSP 5 or greater. Patch spalled areas

with manufacturer approved patching materials.

- D. Material Preparation: Carefully mix and prepare coating materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying coatings in a clean condition, free of foreign materials and residue.
 2. Stir materials before applying to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into the material. Remove film and, if necessary, strain coating material before using.
 3. Use only the type of thinners approved by manufacturer and only within recommended limits.
 4. All thinner shall be added to the paint upon activation. No thinner will be allowed to be added to activated paint to prevent hardening or curing of project prior to application.

3.4 APPLICATION

- A. General: Apply high-performance coatings according to manufacturer's written instructions., unless Engineer specifically authorize the contractor, in writing, to modify the procedure outlined in the manufacturer's instructions.
1. Use applicators and techniques best suited for the material being applied.
 2. Do not apply high-performance coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
 3. Provide finish coats compatible with primers used.
 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, grilles, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
 - a. Coat surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
 - b. Coat back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 5. All paints and coatings shall be applied by qualified workmen, experienced in the application of particular type of paint or coating used.
 - a. Workmen shall exercise extreme care to protect all painted surfaces and/or those prepared for painting.
 - b. It shall be the Contractor's responsibility to prevent damage to any structures, vehicles, vegetation, etc., that might be affected by transmittal of solvent, or coating droplets, or mist, by wind or other means during the performance of the work outlined herein.
 - c. All workmanship shall be of the very best, with all materials evenly spread and smoothly flowed on without runs or sagging.
- B. Finish paint coat shall not be applied to the structural parts of equipment, motors drives and similar items until such equipment has been erected, installed, tested and adjusted under service conditions.

- C. Scheduling Coating: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for coating as soon as practicable after preparation and before subsequent surface deterioration. Additional coats shall be required to achieve the specified Dry Film Thickness.
1. The number of coats and film thickness required is the same regardless of application method.
 - a. Omit primer on metal surfaces that have been shop primed and touch-up painted.
 - b. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer.
 - c. Where manufacturer's written instructions require sanding, sand between applications to produce a smooth, even surface.
 - d. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until coating has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat does not cause undercoat to lift or lose adhesion.
 2. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance. Give special attention to edges, corners, crevices, welds, exposed fasteners, and similar surfaces to ensure that they receive a dry film thickness equivalent to that of flat surfaces.
- D. Application Procedures: Apply coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brush Application: Use brushes best suited for material applied and of appropriate size for the surface or item being coated.
 - a. Apply primers and first coats by brush unless manufacturer's written instructions permit using roller or mechanical applicators.
 - b. Brush out and work brush coats into surfaces in an even film.
 - c. Eliminate cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Neatly draw glass lines and color breaks.
 2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by manufacturer for the material and texture required.
- E. Minimum Coating Thickness: Apply each material no thinner than manufacturer's recommended spreading rate. Provide total dry film thickness of the entire system as recommended by manufacturer.
- F. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by manufacturer, to material required to be coated or finished that has not been prime coated by others.
1. Recoat primed and sealed substrates if there is evidence of suction spots or unsealed areas in first coat, to ensure a finish coat with no burn-through or other defects caused by insufficient sealing.

- G. Completed Work: Match approved Samples for color, texture, and coverage. Remove, refinish, or recoat work that does not comply with specified requirements.

3.5 FIELD QUALITY CONTROL

- A. Owner or Engineer may direct Contractor to stop applying coatings if test results show materials being used do not comply with specified requirements. Contractor shall remove noncomplying coating materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. If necessary, Contractor may be required to remove rejected materials from previously coated surfaces if, on recoating with specified materials, the two coatings are not compatible.
- B. Paints approved for various surfaces shall be as manufactured by companies listed above. The manufacturer shall make available to the Contractor the services of a technical representative who shall be consulted with respect to drying times, cure-out times, compatibility of primers and overcoats, and miscellaneous problems that might arise during the progress of the work.
- C. The Contractor shall properly prepare surfaces prior to proceeding with work and shall be held responsible for any poor work caused by improperly prepared surfaces. The application of the first coat of paint by the Contractor shall be construed as an acceptance by him of the responsibility for the condition of the base.
- D. No sooner than nine months, but no later than twelve months after Substantial Completion, the Owner will make arrangements for an inspection of the coatings, both interior and exterior.
 - 1. The Contractor shall have a representative present for the inspection and shall be prepared to perform any minor corrective work at the time of inspection.

3.6 CLEANING

- A. Cleanup: At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
 - 1. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

3.7 PROTECTION

- A. The Contractor is solely responsible for protecting all existing surfaces, structures, and other facilities adjacent to or in the vicinity of the surfaces being coated, whether above or below ground. The Contractor must furnish, install and maintain all necessary protective measures in order to prevent overspray and/or other damage from occurring. The Contractor shall repair and/or pay for all damages resulting from his operations or personnel to existing facilities, and shall settle in full all damage suites which may arise as a result of his operations.

- B. Protect work of other trades, whether being coated or not, against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Engineer, and leave in an undamaged condition.
1. Provide "Wet Paint" signs to protect newly coated finishes. After completing coating operations, remove temporary protective wrappings provided by others to protect their work.
 2. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces to original condition, or replace with new. Comply with procedures specified in PDCA P1.

END OF SECTION 09 96 00