SECTION 09 96 00

HIGH PERFORMANCE COATINGS

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

*Copyright 2022 - 2022 ARCAT, Inc. - All rights reserved*

\*\* NOTE TO SPECIFIER \*\* Carboline; Coatings, Linings, and Fireproofing.  
This section is based on the products of Carboline, which is located at:2150 Schuetz Rd.St. Louis, MO 63146Toll Free Tel: 800-848-4645Tel: 314-644-1000Fax: 314-644-4617Email: [request info (dillon.sheppard@carboline.com)](https://arcat.com/rfi?action=email&company=Carboline&message=RE%253A%2520Spec%2520Question%2520(09960cbl)%253A%2520&coid=31234&spec=09960cbl&rep=&fax=314-644-4617)  
Web: <https://www.carboline.com>   
 [ [Click Here](https://arcat.com/company/carboline-31234) ] for additional information.  
Operating from a position of global leadership, Carboline is considered the standard of quality high-performance coatings, linings, and fireproofing products. For 75 years, Carboline has combined innovative product development with technical knowledge and experience to provide superior protective coating solutions around the world.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Industrial high performance coating system selection, surface preparation, application, and quality control within mild, moderate, and severe corrosion exposure.
       1. Interior Surfaces:
          1. Concrete walls.
          2. CMU walls.
          3. Structural steel.
          4. Fiberglass.
          5. Gypsum wall board.
          6. Hollow Metal Doors.
          7. Piping, Pipe Supports.
          8. Aluminum in contact with concrete.
       2. Exterior Surfaces:
          1. All concrete, conduit, ducting, or galvanized metal surfaces shall be coated when in a corrosive atmosphere.
          2. Piping, valves, fittings, and hydrants.
          3. Ductwork and supports.
          4. Electrical boxes or panels adjacent to a painted surface.
          5. Fiberglass.
          6. Miscellaneous ferrous metal.
          7. Hollow metal doors frames.
          8. Pipe bollards.
          9. Structural steel.
          10. Exposed wood.
          11. Exposed stucco.
          12. Copper and brass surfaces.
          13. Gypsum Board.
          14. Concrete Walls.
          15. CMU Walls.
          16. Steel Tanks Interior and Exterior.
          17. Gypsum Wallboard.
          18. Concrete Floors.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03 30 00 - Cast-in-Place Concrete (03 30 00) - Cast-in-Place Concrete.
    2. Section 04 20 00 - Unit Masonry (04 20 00) - Unit Masonry.
    3. Section 05 12 13 - Architecturally-Exposed Structural Steel Framing (05 12 13) - Architecturally-Exposed Structural Steel Framing.
    4. Section 05 50 00 - Metal Fabrications (05 50 00) - Metal Fabrications.
    5. Section 06 20 00 - Finish Carpentry (06 20 00) - Finish Carpentry.
    6. Section 06 40 00 - Architectural Woodwork (06 40 00) - Architectural Woodwork.
    7. Section 08 11 13 - Hollow Metal Doors and Frames (08 11 13.13) - Standard Hollow Metal Doors and Frames.
    8. Section 09 21 16.33 - Gypsum Board Area Separation Wall Assemblies (092116.33 - Gypsum Board Area Separation Wall Assemblies.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American Water Works Association (AWWA):
       1. AWWA D102- Painting Steel Water Storage Tanks.
    2. ASTM International (ASTM):
       1. ASTM C868 - Standard Test Method for Chemical Resistance of Protective Linings.
       2. ASTM C1583/1583M - Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method).
       3. ASTM D520 - Standard Specification for Zinc Dust Pigment.
       4. ASTM D2200 - Standard Practice for Use of Pictorial Surface Preparation Standards and Guides for Painting Steel Surfaces.
       5. ASTM D2794 - Standard Test Method for Resistance of Organic Linings to the Effects of Rapid Deformation (Impact).
       6. ASTM D4060 - Standard Test Method for Abrasion Resistance of Organic Linings by the Taber Abraser.
       7. ASTM D4258 - Standard Practice for Surface Cleaning of Concrete.
       8. ASTM D4259 - Standard Practice for Abrading Concrete.
       9. ASTM D4261 - Standard Practice for Surface Cleaning Concrete Unit Masonry for Coating.
       10. ASTM D4262 - Standard Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces.
       11. ASTM D4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
       12. ASTM D4285 - Standard Test Method for Indicating Water or Oil in Compressed Air.
       13. ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness by Notch Gages.
       14. ASTM D4417 - Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel.
       15. ASTM D6944- Standard Test Method for Resistance of Cured Coatings to Thermal Cycling.
       16. ASTM E337 - Standard Practice Test Method for Measuring Humidity with a Psychrometer.
       17. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
    3. International Concrete Repair Institute (ICRI):
       1. Concrete Surface Profiles (CSP).
       2. ICRI 310.2 - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.
    4. National Association of Corrosion Architects International (NACE):
       1. NACE SP0188 - Standard Practice, Discontinuity (Holiday) Testing of Protective Coatings on Conductive Substrates.
       2. NACE 1 - Surface Preparation Standard for White Metal Blast Cleaning.
       3. NACE 2 - Surface Preparation Standard for Near-White Metal Blast Cleaning.
       4. NACE 3 - Surface Preparation Standard for Commercial Blast Cleaning.
       5. NACE 4 - Surface Preparation Standard for Brush-Off Blast Cleaning.
       6. NACE 12 - Specification for the Application of Thermal Spray Coatings (Metallizing) of Aluminum, Zinc, and Their Alloys and Composites for the Corrosion Protection of Steel.
    5. National Association of Pipe fabricators (NAPF):
       1. NAPF 500-03-04 Abrasive Blast Cleaning for Ductile Iron Pipe.
       2. NAPF 500-03-04 Abrasive Blast Cleaning for Ductile Iron Fittings.
    6. Society for Protective Coatings (SSPC):
       1. SSPC 500-03-04 Abrasive Blast Cleaning for Ductile Iron Pipe.
       2. SSPC 500-03-04 Abrasive Blast Cleaning for Ductile Iron Fittings.
       3. SSPC-SP 1 - Solvent Cleaning.
       4. SSPC-SP 2 - Hand Tool Cleaning.
       5. SSPC-SP 3 - Power Tool Cleaning.
       6. SSPC-SP 5 / NACE 1 - White Metal Blast Cleaning.
       7. SSPC-SP 6 / NACE 3 - Commercial Blast Cleaning.
       8. SSPC-SP 7 - Brush off Blast Cleaning.
       9. SSPC-SP 10 / NACE 2 - Near White Metal Blast Cleaning.
       10. SSPC-SP 11 - Machine Tool Cleaning to Bare Metal.
       11. SPSC-SP 12 / NACE 5 - Waterjet Cleaning.
       12. SSPC-SP 13 / NACE 6 - Surface Preparation for Concrete.
       13. SSPC-SP 14 / NACE 8 - Industrial Blast Cleaning.
       14. SSPC-SP 15 - Commercial Grade Power Tool Cleaning.
       15. SSPC-SP 16 - Brush off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non Ferrous Metals.
       16. SSPC-SP WJ-1 / NACE WJ-1 Clean to Bare Substrate.
       17. SSPC-SP WJ-2 / NACE WJ-2 Very Thorough Cleaning.
       18. SSPC-SP WJ-3 / NACE WJ-3 Thorough Cleaning.
       19. SSPC-SP WJ-4 / NACE WJ-4 Light Cleaning.
       20. SSPC-PA1 - Best Practices for Paints and Coatings Application.
       21. SSPC-PA2 - Measurement of Dry Coating Thickness with Magnetic Gauges.
       22. SSPC-PA71 - Procedure for Determining Conformance to Steel Profile/Surface Roughness/Peak Count Requirements.
    7. United States Environmental Protection Agency (EPA):
       1. Method 24 - Surface Coatings.
  1. DEFINITIONS

\*\* NOTE TO SPECIFIER \*\* Add all required project-specific definitions. Delete as required.

* + 1. Approved Factory Finish: Product in compliance with the finish stated in the applicable Specification Section, or in Specification Section - .
    2. CSP: Concrete Surface Profiles.
    3. Definitions of Painting Terms: ASTM D16, unless otherwise specified.
    4. Dry Film Thickness (DFT): Thickness of a coat of cured paint measured in mils (1/1000 inch).

\*\* NOTE TO SPECIFIER \*\* Final determination on environmental exposure (mild vs. moderate vs. Severe shall be made by the owner or Architect on the project. The following definitions are intended to be used as guidelines.

* + 1. Environment: Final determination of environmental exposure category to be made by the Architect.
       1. Mild: Areas subject to a low level of external corrosion. Deemed by the owner or Architect to have a mild level of chemical exposure and low corrosion rates.
       2. Moderate: Areas subject to a moderate level of external corrosion. Deemed by the owner or Architect to have a moderate level of chemical exposure and moderate corrosion rates.
       3. Severe: Areas subject to a high level of external corrosion. Deemed by the owner or Architect to have a high level of chemical exposure and severe corrosion rates.
    2. Exposed Exterior Surface: Area which is exposed to exterior weathering, but not necessarily UV exposure.
    3. Finished Area: An area that is listed in or has finish called for on Room Finish Schedule or is indicated on Drawings to be painted.
    4. Installer or Applicator: Personnel performing product installation onsite.
    5. Mil: One thousandth of an inch.
    6. SSPC SP: Society for Protective Coatings - Surface Preparation Standard for Protective Coatings.
    7. VOC: Volatile Organic Compound.
    8. Wet Film Thickness (WFT): Thickness of a coat of uncured (wet) paint measured in mils (1/1000 inch).
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements and all required documentation noted herein.
     2. Product Data:
        1. Manufacturer's data sheets Product Data Sheets(PDS) and Safety Data Sheets (SDS) on each product to be used, including:
           1. Surface preparation instructions and recommendations.
           2. Storage and handling requirements and recommendations.
           3. Application/Installation methods.
     3. Color Samples: Submit manufacturer's color samples showing full range of standard colors.
     4. Test Reports: Certified test and evaluation reports from a qualified independent third-party agency demonstrating compliance with specified performance characteristics and physical properties.
     5. Qualifications:
        1. Manufacturer: Minimum 25 years' experience manufacturing high performance coatings with sufficient capacity to produce and deliver materials to meet project schedule, and capable of providing field quality control services during construction.
        2. Contractor: The personnel performing the work shall be knowledgeable and have the required experience and skill to perform the work for this project, in accordance with SSPC-PA1, "Shop, Field and Maintenance Painting."
     6. Closeout Submittals:
        1. Repair and touch up kits.
        2. Cleaning and maintenance instructions.
        3. Warranty (if required).
  2. QUALITY ASSURANCE

\*\* NOTE TO SPECIFIER \*\* Modify as required for the Project.

* + 1. Single Source Responsibility: Carboline is listed in as basis of design in this specification and shall be considered the minimum standard of quality for products selected. Obtain all materials, including primers, resins, hardening agents, finish coats, linings, and thinners from Carboline unless otherwise approved.
    2. Installer Qualifications: Minimum 10 years' experience installing similar products and certified by the manufacturer. Experienced in application of specified coatings on projects of similar size and complexity to this work.
       1. Applicator's Quality Assurance: Submit list of a minimum of 5 completed projects of similar size and complexity to this Work. Include for each project:
          1. Project name and location.
          2. Name of owner.
          3. Name of contractor.
          4. Name of Architect.
          5. Name of coating manufacturer.
          6. Approximate area of coatings applied.
          7. Date of completion.
       2. Installer Quality Control Plan: Applicator shall maintain an in-house quality assurance program that monitors surface preparation, coating application, and quality control testing for coating and lining operations. Level of experience, quality assurance program, and quality control testing by the applicator shall meet the minimum requirements specified herein, the coating manufacturer's instructions, and related government regulations.
       3. Installer Personnel: Employ persons trained for application of specified coatings
       4. The Contractor is solely responsible for quality control inspection and testing. Contractor shall monitor and be responsible for all environmental, surface preparation, application, and quality control testing compliance at the locations where coating work is undertaken.
    3. Surface Preparation: Surface preparation shall be based upon comparison with: Pictorial Surface Preparation Standards for Steel Surfaces: SSPC-VIS 1 publication NO. 02-12 "Dry Abrasive Blast Cleaning" SSPC-VIS 2 "Standard Method of Evaluating Degree of Rusting on Painted Surfaces," SSPC-VIS 3 "Power and Hand-Tool Cleaning", as well as ASTM D4417-19 "Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel," or "Method A and/or Method C" or NACE Standard SP0287-2016 "Measuring Surface Profile of Blast-Cleaned Steel Surfaces Using a Replica Tape."
       1. In all cases the written standard shall take precedence over the visual standard.
       2. NACE Standard SP0178 Standard Practice, along with the accompanying Visual Comparator, shall be used to verify the designation of surface finishing of welds.
    4. Coating Thickness: Thickness of coatings and paint shall be measured checked according to the procedures outlined in SSPC-PA 2 "Procedure for Determining Conformance to Dry Coating Thickness Requirements".
       1. Pass/fail criteria shall be agreed upon by owner's Architect, contractor and manufacturer prior to job start.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
       1. Mock-Up Requirements:
          1. Required for coating systems over 1,000 square feet in area.
          2. Contractor, Architect, and Coating Manufacturer to be present during mock up.
       2. Mock-Up Procedure:
          1. Finish areas designated by Architect.
          2. Do not proceed with remaining work until workmanship is approved by Architect.
          3. Refinish mock-up area as required to produce acceptable work.
          4. Approved mock-up may remain as part of finished work and shall set the standard of acceptance for remaining work.
          5. Corrosion protection lining Work that proceeds without approved mock-ups shall be stopped, and mock-ups prepared for approval.
  1. PRE-INSTALLATION CONFERENCE

\*\* NOTE TO SPECIFIER \*\* Modify paragraphs as project requires

* + 1. Conduct pre-installation conference at the Project site minimum two weeks prior to beginning work to verify project requirements. Pre-installation conference shall include the Architect, contractor, installer, supplier, manufacturer's technical representative, and concrete finisher (where applicable).
    2. Review the Following:
       1. General project requirements and contract documents
       2. Environmental requirements, including project conditions and procedures to handle unfavorable conditions.
       3. Protection of surfaces not scheduled to be coated.
       4. Status of substrate work, including approval of surface preparations.
       5. Application Procedures for each specified coating system.
       6. Repair procedures for each specified coating/lining system.
       7. Field quality control, including QC testing and required inspection points.
       8. Cleaning; both daily and end of job contract.
       9. Protection of coating systems.
       10. One-year inspection.
       11. Coordination with other work trades.
    3. Pre-Installation conference notes are to be recorded.

\*\* NOTE TO SPECIFIER \*\* The delivery, storage and handling article is intended to define requirements for material delivery, storage, and handling. Modify as required for the project.

* 1. DELIVERY, STORAGE, AND HANDLING
     1. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:
        1. Coating or material name.
        2. Manufacturer's Application and usage instructions; such as mixing and thinning instructions.
        3. Color name and number.
        4. Batch or lot number.
        5. Date of manufacture.
     2. Storage: The Installer shall provide a dry storage enclosure. Material must be out of direct sunlight and stored in accordance with the Manufacturer's recommendations and relevant health and safety regulations. Refer to the specific Product Data Sheets for additional information.
     3. Handle materials with care to avoid damage.

\*\* NOTE TO SPECIFIER \*\* The project conditions article is intended to define suitable conditions for project work to commence Add, delete, or modify as required for the project.

* 1. PROJECT CONDITIONS
     1. Site Requirements:
        1. Air, material, and substrate temperatures shall remain within the Manufacturer's recommended Application Conditions, providing the substrate temperature is above the dew point. Do not apply coatings when environmental conditions are outside of limits recommended by manufacturer.
        2. Relative humidity in application areas shall be no higher than the maximum stated on the product data sheets.
        3. Utilities, including electric, water, heating and air conditioning, and finished lighting to be supplied by General Contractor.
        4. Ventilation: Provide ventilation during coating application and curing stages in confined spaces or enclosed areas.
     2. Environmental Conditions
        1. Air and Surface Temperatures: Prepare surfaces and apply and cure coatings within air and surface temperature range in accordance with manufacturer's instructions.
        2. Surface Temperature: Minimum of 5 degrees F (3 degrees C) above dew point.
        3. Relative Humidity: Prepare surfaces and apply and cure coatings within relative humidity range in accordance with manufacturer's instructions.
        4. Precipitation: Do not prepare surfaces or apply coatings in rain, snow, fog, or mist.
     3. Dust and Contaminants:
        1. Schedule coating work to avoid excessive dust and airborne contaminants.
        2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.
     4. Concrete Conditions:
        1. Concrete shall be cured for a minimum of 28 days prior to the application of the coating system pending moisture tests specified below.
        2. Concrete surfaces shall have either a flat rubbed finish, floated or light steel trowel finish (a hard steel trowel finish is neither necessary nor desirable as long as surface is even and planar).
        3. Do not use sealers, release agents, or curing membranes on concrete surfaces.
        4. Concrete surfaces on grade shall have been constructed with a vapor barrier below the slab to protect against the effects of vapor transmission and possible delamination of the system.
  2. COORDINATION
     1. Coordinate surface preparation of substrates to avoid later difficulty or delay in performing the Work of this Section.
     2. Review installation procedures under other Sections and coordinate the installation of items that must be installed prior to application of the protective lining.
     3. All substrate surface preparation and lining application, including concrete resurfacing, to be completed by manufacturer's approved Applicator.
     4. The Contractor shall coordinate with the Architect regarding the availability of work areas, completion times, safety, access, and other factors which can impact plant operations.
  3. WARRANTY
     1. Manufacturer's standard limited warranty unless indicated otherwise.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Carboline, which is located at:2150 Schuetz Rd.St. Louis, MO 63146Toll Free Tel: 800-848-4645Tel: 314-644-1000Fax: 314-644-4617Email: [request info (dillon.sheppard@carboline.com)](https://arcat.com/rfi?action=email&company=Carboline&message=RE%253A%2520Spec%2520Question%2520(09960cbl)%253A%2520&coid=31234&spec=09960cbl&rep=&fax=314-644-4617);Web: <https://www.carboline.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. PERFORMANCE REQUIREMENTS
     1. Without limiting the general aspects of other requirements of these specifications, all surface preparation, coating and painting of interior and exterior surfaces and inspection shall conform to the applicable requirements of SSPC (Society for Protective Coatings), NACE International, ASTM (American Society for Testing and Materials), AWWA and the manufacturer's printed instructions.
     2. All coatings and linings must meet federal, state, and local requirements for volatile organic compounds (VOC's).

\*\* NOTE TO SPECIFIER \*\* Delete article not required.

* 1. COATING SYSTEMS
     1. Color Scheme:
        1. Architect to select colors for Project from charts of Carboline's available colors submitted to Architect thirty (30) days prior to start of coating and painting.
        2. Color Schedule: Facilitate identification of piping using Carboline color charts.
     2. Coating Schedule Summary:

\*\*NOTE TO SPECIFIER\*\* Delete substrate paragraphs not required and delete substrate options not required.

* + - 1. Substrate: Steel. Unique Identifier: A.
         1. Interior Environment: Mild to Moderate. System No: AI1.
         2. Interior Environment: Severe. System No: AI2.
         3. Exterior Environment: Mild. System No: AE1.
         4. Exterior Environment: Moderate. System No: AE2.
         5. Exterior Environment: Severe. System No: AE3.
      2. Substrate: Non-Ferrous Metal. Unique Identifier: B.
         1. Interior Environment: Mild to Moderate. System No: BI1.
         2. Interior Environment: Severe. System No: BI2.
         3. Exterior Environment: Mild. System No: BE1.
         4. Exterior Environment: Moderate to Severe. System No: BE2.
      3. Substrate: Precast Concrete, Cast-in-place Concrete, and CMU. Unique Identifier: C.
         1. Interior Environment: Mild. System No: CI1.
         2. Interior Environment: Moderate. System No: CI2.
         3. Interior Environment: Severe. System No: CI3.
         4. Exterior Environment: Mild. System No: CE1.
         5. Exterior Environment: Mild to Moderate. System No: CE2.
         6. Exterior Environment: Moderate to Severe. System No: CE3.
      4. Substrate: PVC, Plaster, Wood, Gypsum Board. Unique Identifier: D.
         1. Interior Environment: Mild to Moderate. System No: DI1.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required or delete exposure and coating options not required.

* + 1. Coating Systems for Steel Substrates
       1. Interior:
          1. Mild to Moderate Exposure:

System Type: Epoxy / Epoxy.

Surface Preparation: SSPC-SP 6.

Primer (DFT): Carboguard 890 (4 - 6).

Primer (DFT): Carboguard 60 (4 - 10).

Intermediate (DFT): N/A

Finish Coat: (DFT): Carboguard 890 (4 - 6).

Finish Coat: (DFT): Carboguard 60 (4 - 10).

Total DFT: 8.0 - 20.0.

* + - * 1. Severe Exposure:

System Type: Epoxy / Epoxy / Urethane.

Surface Preparation: SSPC-SP 6.

Primer (DFT): Carboguard 890 (4 - 6).

Primer (DFT): Carboguard 60 (4 - 10).

Intermediate (DFT): Carboguard 890 (4 - 6).

Intermediate (DFT): Carboguard 60 (4 - 10).

Finish Coat: (DFT): Carbothane 134 Series (2 - 3).

Total DFT: 10.0 - 23.0.

* + - 1. Exterior:
         1. Mild Exposure:

System Type: Epoxy / Polyurethane.

Surface Preparation: SSPC-SP 6.

Primer (DFT): Carbomastic 615 (4-8).

Intermediate (DFT): N/A.

Finish Coat: (DFT): Carbothane 134 Series (2.5 - 4.0).

Total DFT: 6.5 - 12.0.

* + - * 1. Moderate Exposure:

System Type: Epoxy / Epoxy / Polyurethane.

Surface Preparation: SSPC-SP 6.

Primer (DFT): Carboguard 890 (4 - 6).

Intermediate (DFT): Carboguard 890 (4- 6).

Finish Coat: (DFT): Carbothane 134 Series (2.5 - 4.0).

Total DFT: 10.5 - 16.0.

* + - * 1. Severe Exposure:

System Type: Zinc Rich / Epoxy / Polyurethane or Polysiloxane.

Surface Preparation: SSPC-SP 10.

Primer (DFT): Carbozinc 859 (3 - 5).

Intermediate (DFT): Carboguard 890 (4 - 6).

Finish Coat: (DFT): Carbothane 134 Series (2 -3).

Finish Coat: (DFT): Carboxane 2000 (4 - 7).

Total DFT: 9.0 - 18.0.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required or delete exposure and coating options not required.

* + 1. Coating Systems for Non-Ferrous Metals:
       1. Interior:
          1. Mild to Moderate Exposure:

System Type: Epoxy / Epoxy.

Surface Preparation: SSPC-SP 16 (Galvanized and Non-Ferrous).

Primer (DFT): Carboguard 890 (4 - 6).

Primer (DFT): Carboguard 60 (4 - 10).

Intermediate (DFT): N/A

Finish Coat: (DFT): Carboguard 890 (4 - 6).

Finish Coat: (DFT): Carboguard 60 (4 - 10).

Total DFT: 8.0 - 20.0.

* + - * 1. Severe Exposure:

System Type: Epoxy / Epoxy / Urethane.

Surface Preparation: SSPC-SP 16 (Galvanized and Non-Ferrous).

Primer (DFT): Carboguard 890 (4 - 6).

Primer (DFT): Carboguard 60 (4 - 10).

Intermediate (DFT): Carboguard 890 (4 - 6).

Intermediate (DFT): Carboguard 60 (4 - 10).

Finish Coat: (DFT): Carbothane 134 Series (2 - 3).

Finish Coat: (DFT): Carboxane 2000 (3.0-4.0).

Total DFT: 10.0 - 23.0.

* + - 1. Exterior:
         1. Mild Exposure:

System Type: Epoxy / Polyurethane.

Surface Preparation: SSPC-SP 16 (Galvanized and Non-Ferrous).

Primer (DFT): Carbomastic 615 (4 - 8).

Intermediate (DFT): N/A.

Finish Coat: (DFT): Carbothane 133 Series.

Finish Coat: (DFT): Carbothane 134 Series (2.5 - 4.0).

Total DFT: 6.5 - 12.0.

* + - * 1. Moderate to Severe Exposure:

System Type: Epoxy / Epoxy / Polyurethane.

Surface Preparation: SSPC-SP 16 (Galvanized and Non-Ferrous).

Primer (DFT): Carboguard 890 (4 - 6).

Intermediate (DFT): Carboguard 890 (4- 6).

Finish Coat: (DFT): Carbothane 134 Series (2.5 - 4.0).

Finish Coat: (DFT): Carboxane 2000 (3.0-4.0).

Total DFT: 10.5 - 16.0.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required or delete exposure and coating options not required.

* + 1. Coating Systems for Precast concrete, Cast-In-Place Concrete, and CMU:
       1. Interior:
          1. Mild Exposure:

System Type: Acrylic Primer / Water Based Acrylic Topcoat.

Surface Preparation: Surface must be clean and dry. SSPC-SP 13/NACE No. 6 with a surface profile of ICRI Guideline 310.2R-2013, CSP2 - CSP3.

Primer (DFT): Sanitile 100 (6 - 12) (over new, unsealed CMU).

Primer (DFT): Sanitile 120 (1 - 2) (over sealed CMU and concrete).

Intermediate (DFT): N/A.

Finish Coat: (DFT): Carbocrylic 3359 (2 -3).

Total DFT: 8.0 - 15.0 for new, unsealed CMU; 3.0 - 5.0 for sealed CMU or concrete.

* + - * 1. Mild to Moderate Exposure:

System Type: Acrylic Primer / Water Based Epoxy Finish.

Surface Preparation: Surface must be clean and dry. SSPC-SP 13/NACE No. 6 with a surface profile of ICRI Guideline 310.2R-2013, CSP2 - CSP3.

Primer (DFT): Sanitile 100 (6 - 12) (over new, unsealed CMU).

Primer (DFT): Sanitile 120 (1 - 2) (over sealed CMU and concrete).

Intermediate (DFT): N/A.

Finish Coat: (DFT): Sanitile 555 VOC (3 - 4).

Total DFT: 9.0 - 16.0 for new, unsealed CMU; 5.0 - 7.0 for sealed CMU or concrete.

* + - * 1. Moderate to Severe Exposure - Two-coat option:

System Type: Chemical Resistant, solvent free epoxy / Polyester Urethane Finish.

Surface Preparation: Surface must be clean and dry. SSPC-SP 13/NACE No. 6 with a surface profile of ICRI Guideline 310.2R-2013, CSP3 - CSP4.

Primer (DFT): Sanitile 755 (6 - 12).

Intermediate (DFT): N/A.

Finish Coat: (DFT): Sanitile 855 (2 - 3).

Total DFT: 8.0 - 15.0.

* + - * 1. Moderate to Severe Exposure - Single-coat option:

System Type: Chemical Resistant, solvent free epoxy (single coat).

Surface Preparation: Surface must be clean and dry. SSPC-SP 13/NACE No. 6 with a surface profile of ICRI Guideline 310.2R-2013, CSP3 - CSP4.

Primer (DFT): N/A.

Intermediate (DFT): N/A.

Finish Coat: (DFT): Sanitile 755 FR (20.0 - 50.0).

Total DFT: 20.0 - 50.0.

* + - 1. Exterior:
         1. Mild Exposure:

System Type: Acrylic Primer / Water Based Acrylic Topcoat.

Surface Preparation: Surface must be clean and dry. SSPC-SP 13/NACE No. 6 with a surface profile of ICRI Guideline 310.2R-2013, CSP2 - CSP3.

Primer (DFT): Sanitile 100 (6 - 12) (over new, unsealed CMU).

Primer (DFT): Sanitile 120 (1 - 2) (over sealed CMU and concrete).

Intermediate (DFT): N/A.

Finish Coat: (DFT): Carbocrylic 3359 (2 -3).

Total DFT: 8.0 - 15.0 for new, unsealed CMU; 3.0 - 5.0 for sealed CMU or concrete.

* + - * 1. Moderate Exposure:

System Type: Thick film acrylic elastomer.

Surface Preparation: Surface must be clean and dry. SSPC-SP 13/NACE No. 6 with a surface profile of ICRI Guideline 310.2R-2013, CSP2 - CSP3.

Primer (DFT): Flexxide Elastomer (4 - 6).

Intermediate (DFT): N/A.

Finish Coat: (DFT): Flexxide Elastomer (4 - 6).

Total DFT: 8.0 - 12.0.

* + - * 1. Severe Exposure:

System Type: Acrylic Primer / Water Based Epoxy Acrylic Finish,

Surface Preparation: Surface must be clean and dry. SSPC-SP 13/NACE No. 6 with a surface profile of ICRI Guideline 310.2R-2013, CSP2 - CSP3.

Primer (DFT): Sanitile 100 (6 - 12) (over new, unsealed CMU),

Primer (DFT): Sanitile 120 (1 - 2) (over sealed CMU and concrete),

Intermediate (DFT): N/A,

Finish Coat: (DFT): Sanitile 255 (2 - 3),

Total DFT: 8.0 - 15.0 for new, unsealed CMU; 3.0 - 5.0 for sealed CMU or concrete,

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required or delete coating options not required.

* + 1. Coating Systems for PVC, Plaster, Wood, and Gypsum Board:
       1. Interior:
          1. Mild & Moderate Exposure.

System Type: Water Born Acrylic.

Surface Preparation: As per Product Data Sheet.

Primer (DFT): Sanitile 120 (1 - 2).

Intermediate (DFT): Carbocrylic 3359.

Intermediate (DFT): Carbocrylic Series (2 - 3).

Finish Coat: (DFT): Carbocrylic 3339.

Finish Coat: (DFT): Carbocrylic Series (2 - 3).

Total DFT: 5.0 - 8.0 applied in two coats.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. SPECIAL APPLICATIONS / COATING SYSTEMS
     1. Factory Primed Equipment:
        1. \_\_\_\_\_\_\_\_.
     2. Fireproofing primers and topcoats:

\*\* NOTE TO SPECIFIER \*\* Delete paragraphs not required.

* + - 1. Sprayed Fire-Resistive Material (SFRM): Carboline approved primers and topcoats.
      2. Intumescent Fire Resistive Material (IFRM): Carboline approved primers and topcoats.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required or delete system types

* + 1. High Temperature: Substrate Temperature 200 - 350 degrees F.
       1. System Type: Inorganic Zinc / Silicone Acrylic / Silicone Acrylic.
          1. Surface Preparation: As per Product Data Sheet.
          2. Primer (DFT): Carbozinc 11 Series (2.5 - 4.0).
          3. Intermediate (DFT): Thermaline 4900 Series (0.5 - 1.0).
          4. Finish Coat: (DFT): Thermaline 4900 Series (0.5 - 1.0).
          5. Total DFT: 3.5 - 6.0 applied in three coats.
       2. System Type: Epoxy Phenolic.
          1. Surface Preparation: As per Product Data Sheet.
          2. Primer (DFT): Thermaline 450EP (4.0 - 6.0).
          3. Intermediate (DFT): N/A.
          4. Finish Coat: (DFT): Thermaline 450EP (4.0 - 6.0).
          5. Total DFT: 8,0 - 12.0 applied in two coats.
       3. System Type: Epoxy Novolac.
          1. Surface Preparation: As per Product Data Sheet.
          2. Primer (DFT): Thermaline 450 (4.0 - 6.0).
          3. Intermediate (DFT): N/A.
          4. Finish Coat: (DFT): Thermaline 450 (4.0 - 6.0).
          5. Total DFT: 8,0 - 12.0 applied in two coats.
    2. High Temperature: Substrate Temperature 350 - 750 degrees F.
       1. System Type: Inorganic Zinc / Heat Cured Silicone / Heat Cured Silicone.
          1. Surface Preparation: As per Product Data Sheet.
          2. Primer (DFT): Carbozinc 11 series (2.5 - 4.0).
          3. Intermediate (DFT): Thermaline 4700 series (1.0 - 2.0).
          4. Finish Coat: (DFT): Thermaline 4700 series (1.0 - 2.0).
          5. Total DFT: 4.5 - 8.0 applied in three coats.
    3. High Temperature: Substrate Temperature 750 - 1200 degrees F.
       1. System Type: Heat Cured Silicone / Heat Cured Silicone.
          1. Surface Preparation: As per Product Data Sheet.
          2. Primer (DFT): Thermaline 4700 series (1.0 - 2.0).
          3. Finish Coat: (DFT): Thermaline 4700 series (1.0 - 2.0).
          4. Total DFT: 2.0 - 4.0 applied in two coats.
    4. Concrete Restructuring and Repair:
       1. System Type: Waterborne Cementitious Mortar.
          1. Surface Preparation: As per product data sheet.
          2. Product Name: Carbocrete 522.
          3. Total DFT: 0.5 - 3.5 inches.
          4. System Type: Water Based Epoxy Repair Mortar (Trowel Grade or Spray Grade).
          5. Surface Preparation: As per product data sheet.
          6. Product Name: Carboguard 510 or 510SG (Spray Grade).
          7. Total DFT: 0.5 - 3.0 inches for 510 and less than 1/4 inch for 510SG.
       2. System Type: Severe Service Epoxy Novolac Polymer Concrete.
          1. Surface Preparation: As per product data sheet.
          2. Product Name: Semstone 305.
          3. Total DFT: As Required.
       3. System Type: Severe Service Vinyl Ester Polymer Concrete.
          1. Surface Preparation: As per product data sheet.
          2. Product Name: Semstone 8084 Primer / Semstone 884 Vinyl Ester Polymer Concrete.
          3. Total DFT: As Required.

\*\* NOTE TO SPECIFIER \*\* Delete sealants paragraph if not required or delete sealant options not required.

* + 1. Sealants:
       1. Polyurethane Sealant:
          1. Surface Preparation: Substrate must be dry and free from contamination. Prepare Joint and install closed cell foam backer rod.
          2. Product Name: Semstone 6325.
          3. Total DFT: As Required.
       2. Flexible Joint Filler:
          1. Surface Preparation: Substrate must be dry and free from contamination. Prepare Joint and install closed cell foam backer rod.
          2. Primer: Semstone 110 Primer (5 - 10).
          3. Expansion Joint Material: Semstone 806 Flexible Epoxy + Semstone 100 Fabric.
          4. Total DFT: As Required.

\*\*NOTE TO SPECIFIER \*\* "Coating System Summary Schedule" should be completed last after all appropriate products have been selected/specified above.

* 1. COATING SYSTEMS AND SUMMARY SCHEDULE
     1. System: A-1. System: Organic Zinc Rich Primer.
        1. Repair/Primer: \_\_\_\_\_\_\_\_.
        2. Intermediate Coat: \_\_\_\_\_\_\_\_.
        3. Finish / Top Coat: \_\_\_\_\_\_\_\_.
     2. System: A-2. System: Epoxy Primer.
        1. Repair/Primer: \_\_\_\_\_\_\_\_.
        2. Intermediate Coat: \_\_\_\_\_\_\_\_.
        3. Finish / Top Coat: \_\_\_\_\_\_\_\_.
     3. System: A-3. System: P3: Alkyd Primer.
        1. Repair/Primer: \_\_\_\_\_\_\_\_.
        2. Intermediate Coat: \_\_\_\_\_\_\_\_.
        3. Finish / Top Coat: \_\_\_\_\_\_\_\_.
     4. System: B-1. System: Industrial Acrylic, Acrylic, Acrylic Finish (S/G, Gloss).
        1. Repair/Primer: \_\_\_\_\_\_\_\_.
        2. Intermediate Coat: \_\_\_\_\_\_\_\_.
        3. Finish / Top Coat: \_\_\_\_\_\_\_\_.
     5. System: B-2. System: Industrial Epoxy, Polyurethane Finish (S/G, Gloss).
        1. Repair/Primer: \_\_\_\_\_\_\_\_.
        2. Intermediate Coat: \_\_\_\_\_\_\_\_.
        3. Finish / Top Coat: \_\_\_\_\_\_\_\_.
     6. System: B-3. System: Industrial Epoxy, Epoxy, Polyurethane Finish (S/G, Gloss).
        1. Repair/Primer: \_\_\_\_\_\_\_\_.
        2. Intermediate Coat: \_\_\_\_\_\_\_\_.
        3. Finish / Top Coat: \_\_\_\_\_\_\_\_.
     7. System: B-4. System: Industrial Epoxy, Epoxy Finish (S/G).
        1. Repair/Primer: \_\_\_\_\_\_\_\_.
        2. Intermediate Coat: \_\_\_\_\_\_\_\_.
        3. Finish / Top Coat: \_\_\_\_\_\_\_\_.
     8. System: B-5. System: Industrial Epoxy, Epoxy, Epoxy Finish (S/G).
        1. Repair/Primer: \_\_\_\_\_\_\_\_.
        2. Intermediate Coat: \_\_\_\_\_\_\_\_.
        3. Finish / Top Coat: \_\_\_\_\_\_\_\_.
     9. System: F-1. System: Silicone Acrylic to 500F.
        1. Repair/Primer: \_\_\_\_\_\_\_\_.
        2. Intermediate Coat: \_\_\_\_\_\_\_\_.
        3. Finish / Top Coat: \_\_\_\_\_\_\_\_.
     10. System: F-2. System: Silicone to 425 - 1200F.
         1. Repair/Primer: \_\_\_\_\_\_\_\_.
         2. Intermediate Coat: \_\_\_\_\_\_\_\_.
         3. Finish / Top Coat: \_\_\_\_\_\_\_\_.
     11. System: F-3. System: Under Insulation Coating ambient to 350F.
         1. Repair/Primer: \_\_\_\_\_\_\_\_.
         2. Intermediate Coat: \_\_\_\_\_\_\_\_.
         3. Finish / Top Coat: \_\_\_\_\_\_\_\_.

1. EXECUTION

\*\* NOTE TO SPECIFIER \*\* Modify article as required for the project.

* 1. GENERAL
     1. Surface preparation, coating and painting must conform to applicable standards of the Society for Protective Coatings, and the Manufacturer's printed instructions. Material applied prior to approval of the surface by the Architect, shall be removed and re-applied to the satisfaction of the Architect at the expense of the Contractor.
     2. Work must be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice. Continuity of personnel will be maintained, and transfers of key personnel shall be coordinated with the Architect.
     3. The Contractor will provide a supervisor at the work site during cleaning and application operations. The supervisor will have the authority to sign change orders, coordinate work and make decisions pertaining to the fulfillment of the contract.
     4. Thinning is permitted only as recommended by Manufacturer and approved by the Architect.
     5. Dust, dirt, oil, grease, or any foreign matter that will affect the adhesion or durability of the finish must be removed by washing with clean rags dipped in an approved cleaning solvent and wiped dry with clean rags.
     6. Coating and painting equipment must be designed for application of materials specified and maintained in first class working condition. Compressors must have suitable traps and filters to remove water and oils from the air. Equipment will be subject to approval of the Architect.
     7. Application of first coat will follow immediately after surface preparation and cleaning and stripe coat, if applicable, before rust bloom occurs or the same day, whichever is less. Any cleaned areas not receiving first coat within this period must be recleaned prior to application of first coat. Use of dehumidification equipment must be first reviewed by the Architect and coatings manufacturer prior to deviating from this provision.
     8. Prior to assembly, all surfaces made inaccessible after assembly shall be prepared as specified herein and shall receive the coating or paint system specified.

\*\* NOTE TO SPECIFIER \*\* Modify article as required for the project.

* 1. EXAMINATION
     1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for coating application, and other conditions affecting coatings installation or performance. Notify Architect of areas or conditions not acceptable.
     2. Do not begin surface preparation or application until unacceptable areas or conditions have been corrected.
     3. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
  2. PREPARATION
     1. Protection of Surfaces Not Scheduled to be Coated:

\*\*NOTE TO SPECIFIER\*\* Modify the following paragraphs as required for the project.

* + - 1. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.
      2. Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.
    1. Pre-Construction Inspection:

\*\*NOTE TO SPECIFIER\*\* Modify the following paragraphs as required for the project.

* + - 1. Examine areas and conditions under which the protective coating Work is to be performed in accordance with SSPC-SP13/NACE No. 6 and notify Architect in writing of conditions detrimental to the proper and timely completion of the Work.
      2. Examine and report the presence of a positive side waterproofing on the exterior of the concrete structure.
      3. Commencement of the Work of this Section shall indicate that the substrate and other conditions of installation are acceptable to the Contractor and his Applicator and will produce a finished product meeting the requirements of the Specifications. All defects resulting from accepted conditions shall be corrected by Contractor at his own expense.
      4. Stopping Active Leaks: After surface cleaning, any visible leaks or other water ingress shall be reported to the Architect. Any water infiltration through minor leaks must be stopped using a polyurethane grout manufactured by Euclid Chemical, Cleveland, Ohio (800-321-7628), or approved equal. Surface and grouting material may require additional surface preparation prior to application of protective coating.
    1. SURFACE PREPARATION

\*\* NOTE TO SPECIFIER \*\* Delete surface preparation instructions for any substrate not included in the project.

* + - 1. Surface Preparation of Steel: Prepare steel surfaces in accordance with manufacturer's instructions.
         1. Fabrication Defects:

Correct steel and fabrication defects revealed by surface preparation.

Remove weld spatter and slag.

Round sharp edges and corners of welds to a smooth contour.

Smooth weld undercuts and recesses.

Grind down porous welds to pinhole-free metal.

Remove weld flux from surface.

Ensure surfaces are dry.

* + - * 1. Exterior Exposed or Interior Exposed Steel Surfaces:

Prepare exterior exposed or interior exposed steel surfaces in accordance with SSPC-SP 6/ NACE No. 3. Create a surface profile as required by the coating manufacturer.

* + - * 1. Abrasive Blast-Cleaned Surfaces: Coat abrasive blast-cleaned surfaces with primer before visible rust forms on surface. Do not leave blast-cleaned surfaces uncoated for more than 8 hours.
        2. Shop Primer: Shop primed steel shall receive a field sweep blast in accordance with SSPC- SP 7/ NACE No. 4 prior to the application of subsequent coats. Prepare shop primer to receive field coat in accordance with manufacturer's instructions. Remove all unknown shop primers and re-prime in accordance with this specification.
      1. Surface Preparation of galvanized steel and nonferrous metal.
         1. Ensure surfaces are dry and free of visible oil, grease, dirt, dust, rust, corrosion products, zinc salts, and all other foreign matter.
         2. Prepare galvanized steel and nonferrous metal surfaces in accordance with SSPC-SP 16 and the coating manufacturer's instructions.
         3. Test galvanized surfaces for chromate treatments and remove as required by SSPC-SP 16, or other Architect approved method.
      2. Surface Preparation of Ductile or Cast Iron:
         1. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants in accordance with NAPF 500-03-01 (Solvent Cleaning).
         2. Prepare ductile or cast-iron surfaces in accordance with NAPF 500-03-04 and cast-iron fittings in accordance with NAPF 500-03-05 for "Abrasive Blast Cleaning of Cast Ductile Iron Fittings" "DI Fitting Blast Clean # 2", with the exception that ALL rust and mold coating be removed. Only tightly adherent annealing oxide may remain.
         3. Bituminous and/or asphaltic coatings shall not be permitted if field painting is required.
      3. Surface Preparation of Concrete:
         1. Concrete surfaces to be prepared and coated shall be visually inspected for signs of concrete defects, physical damage, chemical damage, contamination, and excess moisture.
         2. Prepare concrete surfaces in accordance with manufacturer's instructions, SSPC-SP 13/NACE NO. 6, and ICRI 310.
         3. Refer to manufacturer data sheet for specific concrete surface profile recommendations by product. Consult manufacturer if the information is not readily available on the PDS.
         4. Level concrete protrusions and mortar spatter.
         5. Newly placed concrete should be cured using the procedures described in ACI 308 and be allowed to cure for a minimum of 28 days.
         6. Prepared concrete surfaces should be tested for residual moisture after cleaning and drying but before the application of the coating. Test concrete for moisture in accordance with ASTM D4263 and, if necessary, either ASTM F2170 or ASTM F1869.
         7. Verify that the pH of the cleaned concrete surfaces to be coated is within the range of to 7 to 11. Application of coating materials outside this range will not be permitted without written approval from the Architect.
         8. Fill hairline cracks less than 1/64 inch (0.4 mm) in accordance with manufacturer's instructions.
         9. Prepare cracks wider than 1/64 inch (0.4 mm), moving cracks, gaps, and expansion joints in accordance with manufacturer's instructions.
         10. Ensure surfaces are clean, dry, and free of oil, grease, chalk, form release agents, and other contaminants.
      4. Surface Preparation of Concrete Masonry Units (CMU):
         1. Prepare porous concrete masonry unit surfaces in accordance with manufacturer's instructions and ASTM D4261.
         2. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.
         3. Allow mortar joints to cure for a minimum of 14 days before coating.
         4. Level protrusions and mortar spatter.
      5. Surface Preparation of Plaster:
         1. Prepare plaster surfaces in accordance with manufacturer's instructions.
         2. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.
         3. Allow plaster to cure and dry out for a minimum of 28 days before coating.
         4. Do not coat over plaster containing free water, lime, or other soluble alkaline salts.
         5. Remove plaster nibs and other protrusions.
         6. Patch voids and cracks with approved materials and after dry, sand flush with surface.
      6. Surface Preparation of Gypsum Board:
         1. Prepare gypsum board surfaces in accordance with manufacturer's instructions.
         2. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.
         3. Sand joint compound smooth and feather edge.
         4. Avoid heavy sanding of adjacent gypsum board surfaces, which will raise nap of paper covering.
         5. Do not apply putty, patching pencils, caulking, or masking tape to drywall surfaces to be painted.
         6. Lightly scuff-sand tape joints after priming to remove raised paper nap. Do not sand through primer.
      7. Surface Preparation of PVC:
         1. Prepare PVC surfaces in accordance with manufacturer's instructions.
         2. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.
         3. Scarify PVC surfaces.
      8. Surface Preparation of Insulated Pipe:
         1. Prepare insulated pipe surfaces in accordance with manufacturer's instructions.
         2. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.
      9. Surface Preparation of Wood:
         1. Prepare wood surfaces in accordance with manufacturer's instructions.
         2. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, surface deposits of sap or pitch, and other contaminants.
         3. Seal knots and pitch pockets.
         4. Sand rough spots with the grain.
         5. Fill cracks and holes with approved materials after primer is dry. Sand flush with surface when filler is hard.
         6. Lightly sand between coats.
  1. INSTALLATION
     1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
     2. Coating System Application:

\*\* NOTE TO SPECIFIER \*\* Modify the following paragraphs as required for the project.

* + - 1. General Application: After completion of surface preparation as specified for the specific system, materials are to be applied as specified herein.
         1. Apply all coatings in accordance with manufacturer's instructions approved submittals, and in proper relationship with adjacent construction.
         2. Keep containers closed when not in use to avoid contamination.
         3. Do not use mixed coatings beyond pot life limits.
         4. Use application equipment, tools, pressure settings, and techniques in accordance with manufacturer's instructions.
         5. Apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems.
         6. Stripe paint with brush critical locations on steel such as welds, corners, and edges using specified primer. Apply and additional strip coat of the intermediate coating material in immersion areas.
         7. Roll or back roll the first coat of epoxy or block filler applied to concrete or interior block substrates to work the material into the substrate.
      2. Mixing: Thoroughly mix coatings until homogeneous following manufacturer's instructions. Mix only components furnished by coating manufacturer.
      3. Care shall be taken to eliminate overspray and dry spray. Where such conditions are encountered, the surface shall be cleaned of all over spray and dry spray prior to the application of the succeeding coat.
      4. Areas rendered inaccessible after erection shall receive the full coating system prior to erection and/or assembly.
      5. Repair of Damaged Coatings/Linings:
         1. Damaged coatings, pinholes, and holidays shall have the edges feathered and repaired in accordance with the recommendations of the coating manufacturer.
         2. All finish coats, including touchup and damage-repair coats, shall be applied in a manner that will present a uniform texture and color-matched appearance.
         3. All visible areas of chipped, peeled, or abraded coatings shall be hand or power sanded. Prime and finish coat these in accordance with these Specifications and the manufacturer's recommendations.
      6. Unsatisfactory Application: If an item has an improper appearance or insufficient film thickness, the surface shall be cleaned, prepared, and top-coated as required to achieve proper appearance and/or thickness.

\*\*NOTE TO SPECIFIER\*\* Add, delete, or modify paragraphs as required. Consult Carboline for project-specific field quality control recommendations for field service documentation.

* 1. FIELD QUALITY CONTROL
     1. Required Inspection and Documentation:
        1. Verify coatings and other materials are as specified.
        2. Verify environmental conditions are as specified.
        3. Verify surface preparation and application are as specified.
        4. Verify DFT of each coat and total DFT of each coating system are as specified using wet film and dry film gauges. Measure DFTs in accordance with SSPC-PA 2.
        5. Coating Defects: Check coatings for film characteristics or defects that would adversely affect performance or appearance of coating systems.
        6. Check for holidays (pinholes) on interior steel immersion surfaces using holiday detector in accordance with NACE SP0188 or SSPC-TU 11 using a safe blue light inspection lamps if OAP technology is used.
     2. Reporting: To Include the Following:
        1. Daily Inspection reports, including inspections made and actions taken to correct non-confirming work.
        2. Report non-conforming work not corrected.
        3. Submit copies of report to Architect and Contractor.
     3. Independent Third Party Inspection:
        1. The services of an independent coating inspector may be retained and paid for by the Owner to inspect the surface preparation and application of the specified coatings.
        2. Contractor will cooperate with inspector to provide safe access for inspection and conduct thorough inspection of substrates or linings to ensure that work is done in accordance with contract documents.
        3. Applicator and Contractor are responsible to provide a minimum of 48 hours of notice to inspector for inspection points identified at the start of the lining work.
        4. Should Contractor not be ready for a mutually agreed upon date for an inspection and inspector shows up on site, the Contractor will be responsible to pay for the inspector's time for any wasted inspection trips.
  2. CLEANING AND PROTECTION

\*\*NOTE TO SPECIFIER\*\* Add, delete, or modify paragraphs as required.

* + 1. Upon completion of Work, staging, scaffolding, and containers are to be removed from the site or destroyed in a manner approved by the Architect.
    2. Coating or paint spots, oil or stains upon adjacent surfaces will be removed and jobsite cleaned. Damage to surfaces resulting from the Work of this section must be cleaned, repaired, or refinished to the satisfaction of the Architect at no cost to the Owner.
    3. Touch-up, repair or replace damaged products before Substantial Completion.
  1. ONE YEAR INSPECTION

\*\*NOTE TO SPECIFIER\*\* Add, delete, or modify paragraphs as required.

* + 1. Owner will set date for one-year inspection of coating systems.
    2. Inspection is to be attended by Owner, Contractor, Architect, and Manufacturer's Representative.
    3. Repair deficiencies in coating systems as determined by Architect in accordance with manufacturer's instructions.

END OF SECTION