SECTION 09260
GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.01 SCOPE

A. Gypsum sheathing.

B. Joint treatment and accessories.

1.02 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate special details associated with fireproofing and acoustic seals.

C. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

D. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

E. Test Reports: For all stud framing products that do not comply with ASTM C645 or C 754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

PART 2 - PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

B. Interior Partitions Indicated as Acoustic: Provide completed assemblies with the following characteristics:

1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

2.02 METAL FRAMING MATERIALS

A. Manufacturers - Metal Framing, Connectors, and Accessories:

1. Clarkwestern Dietrich Building Systems LLC: www.clarkdietrich.com.
2. Dietrich Metal Framing: www.dietrichindustries.com.
3. Marino\Ware: www.marinoware.com.
4. Phillips Manufacturing Company: www.phillipsmfg.com.

B. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 10 psf.

1. Exception: The minimum metal thickness and section properties requirements of ASTM C 645 are waived provided steel of 40 ksi minimum yield strength is used, the metal is continuously dimpled, the effective thickness is at least twice the base metal thickness, and maximum stud heights are determined by testing in accordance with ASTM E 72 using assemblies specified by ASTM C 754.
2. Studs: "C" shaped with flat or formed webs with knurled faces.
3. Runners: U shaped, sized to match studs.

2.03 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:

1. American Gypsum: www.americangypsum.com.
2. Georgia-Pacific Gypsum LLC: www.gp.com/gypsum.
3. Lafarge North America Inc: www.lafargenorthamerica.com.
4. National Gypsum Company: www.nationalgypsum.com.
5. USG Corporation: www.usg.com.

B. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.

1. Application: Exterior sheathing, unless otherwise indicated.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. Glass-Mat-Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C1177/C1177M.
4. Core Type: Regular and Type X, as indicated.
5. Type X Thickness: 5/8 inch.
6. Regular Board Thickness: 5/8 inch.
7. Edges: Square, for vertical application.
8. Glass-Mat-Faced Products:
   a. CertainTeed Corporation; GlasRoc Brand.
   b. Georgia-Pacific Gypsum LLC; DensGlass Gold Sheathing.
   c. National Gypsum Company; Gold Bond Brand e2XP Extended Exposure Sheathing.
   d. Temple-Inland Inc; GreenGlass Exterior Sheathing.

2.04 ACCESSORIES

A. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless otherwise indicated.

1. Types: As detailed or required for finished appearance.

B. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.

1. Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.

C. Screws for Attachment to Steel Members From 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws for application of gypsum board to loadbearing steel studs.

D. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

3.03 BOARD INSTALLATION

A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

1. Exception: Tapered edges to receive joint treatment at right angles to framing.

C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

D. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.

E. Exterior Soffit Board: Install perpendicular to framing, with staggered end joints over framing members or other solid backing.

F. Cementitious Backing Board: Install over steel framing members where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.

G. Installation on Metal Framing: Use screws for attachment of all gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.

H. Curved Surfaces: Apply gypsum board to curved substrates in accordance with GA-226.

I. Moisture Protection: Treat cut edges and holes in moisture resistant gypsum board and exterior gypsum soffit board with sealant.

3.04 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.

B. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

3.05 JOINT TREATMENT

A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, bedded and finished with chemical hardening type joint compound.

3.06 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION 09260

SECTION 09900
PAINTING AND PROTECTIVE COATINGS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. This Section of the Specifications includes, but is not necessarily limited to, standards for cleaning and painting structures and equipment described in the Drawings and Specifications. Furnish all materials, equipment, and labor necessary to complete the Work.

B. Section includes:

1. Surface preparation to receive finishes.
2. Painting, or otherwise finishing of all surfaces.

C. Related Work specified elsewhere:

1. Section 04400 - Masonry
2. Section 05120 - Structural Steel.
3. Section 05500 - Miscellaneous Metal.
4. Section 15050 - Basic Mechanical Materials and Methods.
5. Section 15060 – Piping and Appurtenances
6. Section 15100 - Valves and Piping Appurtenances

1.02 SUBSTITUTIONS

A. To the maximum extent possible, similar coatings shall be the products of one manufacturer. Guidelines for determination of acceptability of product substitutions are given in Instructions to Bidders. Contractors intending to furnish substitute materials or equipment are cautioned to read and comply strictly with these guidelines.

1.03 SUBMITTALS

A. All submittals and storage and protection provisions shall be in accordance with the requirements of the General Conditions, and the following.

1. Product data:
   a. Submit complete list of products for use; indicate compliance with:
      i) Mercury-free composition limits.
      ii) VOC limits, when mixed and thinned.
      iii) Indicate lead content.
   b. Indicate manufacturer, brand name, quality, and type paint for each surface to be finished correlate to specified item if from other manufacturer than specified item. Refer to the attached sample Paint Submittal Schedule for required submittal format.
   c. Include specified manufacturer's data sheets for reference to submitted manufacturer's data sheets.

d. Manufacturer's Safety Data Sheets (MSDS) for materials.

e. Intent of Contractor to use products specified does not relieve him from responsibility of submitting product line.

2. Samples:
   a. Color samples: Submit two sets of color samples from paint manufacturers proposed for use for color selections by Engineer.
   b. Brush-outs:
      i) Prepare actual brush-outs for each color paint, stain, or finish following final color schedule issuance.
      ii) Submit brush-outs in duplicate: minimum size, 120 sq. in.
      iii) Apply products in number of coats specified for actual Work.
      iv) Provide following substrates for brush-outs:
         a) Concrete unit masonry: Paint one face to simulate concrete and masonry.
         b) Metals for paint finish.

3. Quality control submittals:
   a. Certificates:
      v) Indicate interior paints are mercury-free.
      vi) Indicate lead content. Lead content in excess of 0.06% by weight of nonvolatile content calculated as lead metal is prohibited.
      vii) Indicate compliance with applicable VOC limits when mixed and thinned.

1.04 PROJECT MEETING

A. Prior to ordering any of the materials covered under this Section, the Contractor, Engineer, painting subcontractor, and paint manufacturer's representative shall attend a progress meeting in accordance with the General Conditions, and review the Work to be performed under this Section.

1.05 PAINTING REQUIREMENTS

A. Finish paint all exposed surfaces except anodized or lacquered aluminum, fiberglass reinforced plastic, stainless steel and copper surfaces. Items to be left unfinished or to receive other types of finishes are specifically shown on the Drawings or specified.

1. Unpainted Products: Full field cleaning and priming will be performed in accordance with specification requirements for unpainted products. Maintain adequate equipment on the site to assure proper cleaning.

2. Shop Primed Products:
   a. Manufactured products may be shop cleaned and primed. Shop cleaning must equal or exceed cleaning specified in the Painting Schedule. Clean as specified and reprime all abrasions, weld splatter, excessive weathering, and other defects in the shop prime coating.
   b. Manufacturers furnishing shop primed products shall certify that cleaning was performed in accordance with specification requirements and that the specified primer was used.
   c. Fully field clean and prime any shop primed products which the Engineer determines that were not cleaned in accordance with the Specifications prior to priming, that the wrong

primer was applied, that the primer was applied improperly, or has excessively weathered, or the product is otherwise unacceptable.

3. Finish Painted Products:
   a. Certain products such as electrical control panels and similar items may, with the approval of the Engineer, be furnished finish painted. Properly protect these products throughout the project to maintain a bright and new appearance. If the finish surfaces are defaced, weathered, or not of the selected color, repaint as necessary in accordance with the paint system manufacturer's written recommendations.

4. Hardware:
   a. Remove all electrical plates, surface hardware, fittings and fastenings prior to painting operations. These items are to be carefully stored, cleaned and replaced upon completion of Work in each area. Do not use solvent to clean hardware that may remove permanent lacquer finish.

1.06 SEQUENCING AND SCHEDULING

A. Schedule and coordinate this Work with other trades; proceeding until other Work and job conditions are proper to achieve satisfactory results is prohibited.

B. Examine specification sections for various other trades; be thoroughly familiar with Work required in other sections regarding painting.

PART 2 - PRODUCTS

2.01 MATERIAL SCHEDULE

A. Material schedules list pretreatment coats, wash coats, seal coats, prime coats, intermediate coats, finish coats and cover coats that comprise a complete and compatible system of surface protection for the particular substrate. Maintain the unity of these systems, making sure all coats applied to any surface are from the same system and same manufacturer. Verify with the manufacturer the compatibility of the materials used.

2.02 APPLICATION DATA

A. All applicable data currently published by the paint manufacturer relating to surface preparation, coverages, film thickness, application technique, drying and overcoating times is included by reference as a part of this Section. It will be the responsibility of the Contractor to obtain and fully understand the appropriate data sheets for the coatings specified.

2.03 MATERIALS

A. Paints shall be factory mixed and delivered to the job in unbroken original packages bearing the manufacturer's name and brand designation and shall be applied in strict accordance with the manufacturer's printed specifications. Two-component coatings shall be mixed in accordance with manufacturer's instructions. All two-component coatings, once mixed, shall be applied within the pot-life recommended by the manufacturer.

B. Unless otherwise specified, paints shall be of the best grade. All thinners, driers, varnish, etc., shall be of the best grade and shall be furnished by the coating manufacturer for use with the specified paints.

C. Paint thinners and tints: Products of same manufacturer as paints or approved by paint manufacturer for use with paint.

D. Patching compounds, and similar materials required for execution of Work: Pure, best quality products.

2.04 COLORS

A. Pump Stations:

1. The Engineer will select the colors to be used on the various portions of the Work. Provide color cards for the coatings proposed. Where more than one coat of paint is required, job tint the paint for each undercoat off-shade to show complete coverage.
2. Paint inside of ductwork flat black for entire area visible through ceiling openings. Paint underside of ductwork and other above ceiling items flat black for entire area visible through ceiling openings.
3. Paint exposed pipes and ductwork for HVAC systems same as adjacent ceiling surfaces.
4. Paint process piping per colors specified in schedule.

PART 3 - EXECUTION

3.01 GENERAL

A. Adequately protect other surfaces from paint and damage. Furnish sufficient drop cloths, shields and protective equipment to prevent spray or droppings from fouling surfaces not being painted. Repair damage as a result of inadequate or unsuitable protection.

B. Protection: Cover finished Work of other trades, surfaces not being painted concurrently, and prefinished items.

C. Application of materials in spaces where dust is being generated is prohibited.

3.02 PRODUCT HANDLING

A. Delivery

1. Deliver materials in original, sealed containers of the manufacturer with labels legible and intact.
2. Each container shall be clearly marked or labeled to show paint identification, paint type and color, date of manufacture, batch number, analysis or contents, identification of all toxic substances, and special instructions.

B. Storage

1. Store only acceptable project materials on the project site.

2. Store material in a suitable location and in such a manner as to comply with all safety requirements including any applicable federal, state and local rules and requirements. Storage shall also be in accordance with the instructions of the paint manufacturer and the requirements of the insurance underwriters.

3. Restrict storage area to paint materials and related equipment.

4. Place any materials, which may constitute a fire hazard in closed metal containers and remove daily from the project site.

5. Maintain neat, clean conditions in storage area; remove used rags from work areas at end of each day's work; store rags in closed containers.

6. Close containers at end of each day's Work. Leave no materials open.

7. Safety precautions:
   a. Provide temporary fire protection equipment in materials storage area. Mark fire protection equipment location for quick access.
   b. Prohibit smoking in storage area; post signs in visible location adjacent to and within storage area.

3.03 CLEANING AREA

A. Construct a temporary shed no smaller than 40 feet wide and 60 feet long for field cleaning, including blasting and priming operations. Maintain this area for all non-fixed painting operations until all such work has been completed and approved. Provide all fixtures and appurtenances required to perform the work including fixtures to support the work off the ground and proper storage facilities.

3.04 ENVIRONMENTAL CONDITIONS

A. Environmental conditions, which affect coating application include, but are not necessarily limited to, ambient air temperature, surface temperature, humidity, dew point and environmental cleanliness. Comply with the manufacturer's recommendations regarding environmental conditions under which coatings may be applied.

3.05 SURFACE PREPARATION

A. General: All surfaces shall be thoroughly clean, dry, and free from oil, grease or dust. All fabricated metal products shall have all weld flux and weld spatter removed and sharp peaks in weld ground smooth. The Engineer will inspect the surface preparation prior to the application of coatings. If the preparation is found to be satisfactory, a written order will be given to proceed with coatings.

B. Gypsum board:

1. Fill narrow, shallow cracks and small holes with patching plaster or non-shrinking spackling compound. Allow to dry; sand smooth without raising gypsum board paper nap.

2. Apply U.S. Gypsum Company, Sheetrock First Coat at 300-500 SF per gallon in accord with manufacturer's installation instructions. Allow to dry prior to prime coat application.

C. Ferrous Metals: Standards for the surface preparation of ferrous metals required in the Material Schedules are the standards of the Steel Structures Painting Council (SSPC, SP-1 through SP-10).

Inspection of these surfaces will be evaluated by field comparison with visual comparator panels. These panels shall be securely wrapped in clear plastic and sealed to protect them from deterioration and marring.

1. Delivery primer on structural steel shall be removed prior to beginning painting work specified.

D. Galvanized metal: Wash with xylol to remove grease, oil, and contaminants; wipe dry with dry cloth.

E. Concrete Masonry Unit Surfaces:

1. Clean thoroughly by brushing, scraping and sanding or grinding slick areas. Remove loose or projecting mortar, solvent wash oil, grease, paint spots before applying block filler.

3.06 APPLICATION

A. Conditions: No paint shall be applied upon damp or frosty surfaces, or in wet or foggy weather. No paint shall be applied in temperatures below 40 F. or when freezing (32 F.) is predicted within 24 hours of application, or under temperature or humidity conditions not recommended by the manufacturer.

B. Surface Preparation: After specified surface preparation, all surfaces shall be brushed free of dust or foreign matter. Surfaces shall be completely dry before any paint is applied.

1. Apply materials only when moisture content of surfaces is within manufacturer's recommended range.

C. Application: Paint shall be evenly spread in the proper thickness so that there shall be no drops, runs or sagging of the coating. Where runs and drops do occur, they shall be removed and the surface re-coated to the satisfaction of the Engineer. Sufficient time, as directed by the manufacturer, shall be allowed for the paint to dry before the application of succeeding coats.

1. Apply materials in accord with manufacturer's approved product data to achieve specified DFT.
2. Apply materials using clean brushes, rollers, or spray equipment. Limit paint spraying only to those materials recommended by manufacturer to be sprayed with no loss of performance, durability, or color.
3. Apply materials at rate not exceeding manufacturer's recommendations for surface being coated, less ten percent for losses.
4. Sand and dust between coats to remove defects visible from 5' - 0" distance. Tint primer and intermediate coats slightly to provide slight contrast.
5. Finish coats: Smooth, free of brush marks, streaks, laps or pile-up of paint, skips, or missed areas.
6. Make coating edges adjoining other materials or colors sharp and clean without overlapping.
7. Primer coats may be omitted for surfaces specified to receive factory applied primer if finish coats are compatible with primer. Substitute bond coat recommended by paint manufacturer for specified primer coat if finish coats are not compatible.

8. Refinish entire ceiling surface where portion of finish on gypsum board ceiling is damaged or unacceptable.

D. Protection of Work Area: Use drop cloths or other suitable means to protect other surfaces of the structure or equipment in place. Upon completion of the Work, remove all paint spots from surfaces as directed by the Engineer.

E. Inspection: The Engineer will inspect each coat prior to the application of subsequent coats. If the work is found to be satisfactory, a written order will be given to proceed. Application of

additional coats until completed coat has been inspected is prohibited. Only inspected coats of paint will be counted in determining the number of coats applied.

F. Defective Work: Remove and replace, at the direction of the Engineer, any painting work found to be defective or applied under adverse conditions.

3.07 PAINTING SCHEDULE

A. Surfaces not requiring painting:

1. Face brick.
2. Fiberglass doors and frames.
3. Louvers.
4. Prefinished surfaces and items.
5. Concealed ductwork, conduit, and piping.

B. The Painting Schedule summarizes the painting systems to be applied to the various surfaces.

1. SAMPLE PAINT SUBMITTAL SCHEDULE

System	Specification	Item	Surface Prep	Primer	Finish & Touch Up	Color
A	SS 04400	Masonry Paint	SSPC 2 or 3 Pressure Washing to Remove Loose Concrete & Dirt	Tnemec Series 130	2 Coats of Tnemec Series N69F at 4-6.0 mils per coat	To be selected
B	SS 05120	Interior structural steel, joist and underside of metal decking	SSPC 6 for Non-Immersion	Not Required	2 coats Tnemec Series 69 @ 6-8.0 mils	To be selected
C	SS 05500	Misc. Metals	SSPC 6 for Non-Immersion	Not Required	2 Coats of Tnemec Series N69F Non-	To be selected

System	Specification	Item	Surface Prep	Primer	Finish & Touch Up	Color
					Immersion at 4-6.0 mils	
D	SS 09260	Exterior Gypsum Board	S Joint compound and sand smooth and feather edge	Tnemec Series 151- Elasto Grip	2 coats of Tnemec Series7 @ 2-3.0 mils per coat	To be selected
E	SS 15060	Ductile Iron Pipe	SSPC 6 for Non-Immersion	Tnemec Series N69F	2 Coats of Tnemec Series N69F for Non-Immersion at 4-6.0 mils per coat	To be selected
F	SS 15060	Ductile Iron Pipe	SSPC 10 for Immersion	Tnemec Series N69F	2 Coats of Tnemec Series N69F for Immersion at 4-6.0 mils per coat	To be selected
G	SS 15100	Valves & Operators	Lightly Sand	Tnemec Series N69F	2 Coats of Tnemec Series N69F for Immersion at 4-6.0 mils	To be selected
H	SS 11199	Pumps & Drives	Lightly Sand	Tnemec Series N69F	2 Coats of Tnemec Series N69F for Immersion at 4-6.0 mils per coat	To be selected
I	SS 05120	Exterior bridge crane supporting steel, bridge crane assembly and odor control support bridge and framing	SSPC 6 for Non-Immersion	Tnemec Series N69F	1 Coat of Series 1075U 4 mils	To be selected

2. PAINTING SCHEDULE

Surfaces	Substrate Materials	Paint Material/Schedule
Ceilings	Gypsum Board	
Walls		
	CMU Block	131
Interior Structural Steel, joists and underside of metal decking	Galvanized Metal	140
	Ferrous Metal	140
Piping, piping supports, valves and pumps	Galvanized Metal	141
	Ferrous Metal	141
Exterior bridge crane supporting steel, bridge crane assembly and odor control support bridge and framing	Ferrous Metal	240

3. PIPE IDENTIFICATION COLOR SCHEDULE

Pipe System	Legend Symbol	Generic Color	Paint Color	Letters and Arrows	Stencil Text
Raw Sewage	RS	Light Brown		Black	Raw Sewage
Non-Potable Water	NPW	Medium Blue		Black	Non-Potable Water
Drain	PD	Light Brown		Black	Drain
Potable Water	PW	Light Blue		Black	Potable Water
Vent	V	Light Blue		Black	Vent

MATERIAL SCHEDULE

MATERIAL SCHEDULE
131

TYPE: EPOXY

USE: INTERIOR MASONRY AND CONCRETE

SURFACE PREPARATION: CC-I

TNEMEC

FIRST COAT: EPOXY-POLYMIDE FILLER

SECOND COAT: SERIES N69F HI-BUILD EPOXOLINE - 4.0 MILS DRY

THIRD COAT: SERIES N69F HI-BUILD EPOXOLINE - 4.0 MILS DRY

* MINIMUM 8.0 MILS DRY

KOPPERS

FIRST COAT: CONCRETE AND MASONRY FILLER

SECOND COAT: HI-GARD EPOXY - 4.0 MILS DRY

THIRD COAT: HI-GARD EPOXY - 4.0 MILS DRY

* MINIMUM 8.0 MILS DRY

NOTES:

1. IF MINIMUM MIL THICKNESS IS NOT ACHIEVED IN NUMBER OF COATS SHOWN, ADDITIONAL COATS WILL BE APPLIED AT NO ADDITIONAL EXPENSE TO CITY.

2. PRODUCTS OF THE FOLLOWING MANUFACTURERS SIMILAR IN TYPE, COLOR, SOLIDS AND QUALITY TO THE PRODUCTS SPECIFIED ABOVE ARE ACCEPTABLE FOR USE, SUBJECT TO APPROVAL OF PRODUCT LIST AND SAMPLES:

a. Sherwin-Williams Company.

MATERIAL SCHEDULE
140

TYPE: POLYAMIDOAMINE EPOXY

USE: FERROUS METAL SURFACES AND STRUCTURAL STEEL, METAL JOISTS AND UNDERSIDE OF METAL DECKING LOCATED INSIDE A BUILDING WHICH ARE NOT SUBMERGED. NOT FOR USE WITH PROCESS EQUIPMENT.

SURFACE PREPARATION: SSPC SP-6

TNEMEC

FIRST COAT: SERIES N69F EPOXOLINE II - 6.0 - 8.0 MILS*

SECOND COAT: SERIES N69F EPOXOLINE II - 6.0 - 8.0 MILS*

* MINIMUM DRY FILM THICKNESS

NOTES:

1. IF MINIMUM TOTAL DRY FILM THICKNESS OF 14.5 MILS IS NOT ACHIEVED IN THE NUMBER OF COATS SPECIFIED, ADDITIONAL COATS SHALL BE APPLIED AT NO ADDITIONAL COST TO THE OWNER.

2. PRODUCTS OF THE FOLLOWING MANUFACTURERS SIMILAR IN TYPE, COLOR, SOLIDS AND QUALITY TO THE PRODUCTS SPECIFIED ABOVE ARE ACCEPTABLE FOR USE, SUBJECT TO APPROVAL OF PRODUCT LIST AND SAMPLES:

a. Koppers.
b. Sherwin-Williams Company.

MATERIAL SCHEDULE
141

TYPE: HIGH BUILD EPOXY

USE: PROVIDE THE FOLLOWING COATING SYSTEM FOR FERROUS METAL SURFACES ON ALL MECHANICAL EQUIPMENT AND ACCESSORIES INCLUDING BUT NOT LIMITED TO: PUMPS, VALVING AND OTHER PROCESS EQUIPMENT EXPOSED STEEL PIPE.

SURFACE PREPARATION: SSPC-SP10 NEAR WHITE BLAST-IMMERSION SERVICE

TNEMEC

FIRST COAT: SERIES N69F HI-BUILD EPOXOLINE II 4.0-6.0 MILS DRY

THIRD COAT: SERIES 66 HI-BUILD EPOXOLINE II 4.0-6.0 MILS DRY

* MINIMUM TOTAL DRY FILM THICKNESS 10.5 MILS

NOTES:
1. IF MINIMUM TOTAL DRY FILM THICKNESS IS NOT ACHIEVED IN THE NUMBER OF COATS SHOWN, ADDITIONAL COATS SHALL BE APPLIED AT NO ADDITIONAL COST TO THE OWNER.

2. PRODUCTS OF THE FOLLOWING MANUFACTURERS SIMILAR IN TYPE, COLOR, SOLIDS AND QUALITY TO THE PRODUCTS SPECIFIED ABOVE ARE ACCEPTABLE FOR USE, SUBJECT TO APPROVAL OF PRODUCT LIST AND SAMPLES:

a. Koppers.
b. Sherwin-Williams Company.

MATERIAL SCHEDULE
240

TYPE: ALIPHATIC ACRYLIC POLYURETHANE

USE: EXTERIOR OF BRIDGE CRANE SUPPORTING STEEL, BRIDGE CRANE ASSEMBLY AND ODOR CONTROL SUPPORT BRIDGE AND FRAMING

SURFACE PREPARATION: SP6

TNEMEC

FIRST COAT (SHOP PRIMER): SERIES N69F HI BUILD EPOXOLINE 11 – 4.0 MILS DRY*
EPOXOLINE PRIMER 2.0 MILS

SECOND COAT (SHOP COAT): SERIES N69F HI BUILD EPOXOLINE 11 – 4.0 MILS DRY*

THIRD COAT: SERIES 1075U ENDURA SHIELD 11 – 4.0 MILS DRY*

*MINIMUM 12.0 MILS DRY

NOTES:

IF MINIMUM DRY FILM THICKNESS IS NOT ACHIEVED IN NUMBER OF COATS SHOWN ADDITIONAL COATS WILL BE APPLIED AT NO ADDITIONAL EXPENSE TO CITY.

PRODUCTS OF THE FOLLOWING MANUFACTURES SIMILAR IN TYPE, COLOR, SOLIDS AND QUALITY TO THE PRODUCTS SPECIFIED ABOVE ARE ACCEPTABLE FOR USE, SUBJECT TO APPROVAL OF PRODUCT LIST AND SAMPLES.

Sherwin Williams Company.

Valspar.

PPG Industries. Inc.

END OF SECTION 09900

SECTION 09960
HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. High performance coatings.

B. Permanent Protective Barrier coating

C. Special preparation of surfaces.

1.02 REFERENCE STANDARDS

A. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

B. SSPC-SP 3 - Power Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

C. SSPC-SP 6 - Commercial Blast Cleaning; Society for Protective Coatings; 2006.

1.03 SUBMITTALS

A. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1. Manufacturer's Certification: Provide certificates signed by manufacturer or manufacturer's representative certifying that the materials to be installed comply in all respects with the requirements of this specification, and that the applicator is certified and approved to install the materials in accordance with manufacturer's specifications.

C. Maintenance Data: Include cleaning procedures and repair and patching techniques.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. Extra Coating Materials: 10 gallon of each type and color.
2. Label each container with manufacturer's name, product number, color number, and room names and numbers where used.

E. Manufacturer's Field Report: Provide copy of report from manufacturer's representative confirming that the surfaces to which Protective Barrier is to be applied are in a condition suitable to receive same.

1.04 QUALITY ASSURANCE

A. Maintain one copy of each referenced document that applies to application on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

C. Applicator Qualifications High Performance Coatings: Company specializing in performing the work of this section with minimum 5 years documented experience.

D. Manufacturer Permanent Protective Coating: Provide products of manufacturer with no less than 5 years experience in manufacturing the silica sealant materials for the required work. Manufacturers that cannot provide the performance test data specified herein will not be considered for the project.

E. Applicator: Permanent Protective Coating applicator shall be certified at a Field Tech Level in the installation of SilTanium silica coating materials as demonstrated by previous successful installations, and shall be approved by the manufacturer in writing.

F. Pre-Installation Conference: Prior to installation of SilTanium Coatings, conduct meeting with applicator, installers of work adjacent to, Architect/Engineer, owner's representative, and SilTanium Corporation's representative to verify and review the following:

1. Project requirements for SilTanium Coating Application as set out in Contract Document.
2. Manufacturer's product data including application instructions.
3. Substrate conditions, and procedures for substrate preparation and SilTanium installation.
4. Installation scheduling, timing, and coordination with adjacent trades.

G. Technical Consultation: The SilTanium Corporation representative shall provide technical consultation on coating application.

H. Compliance: Comply with manufacturer's product data regarding condition of substrate to receive coating, weather conditions before and during installation, and protection of the installed coating system.

1.05 MOCK-UP

A. Provide mock-up, 8 feet long by 4 feet wide, illustrating coating, for each specified coating.

B. Locate where directed.

C. Mock-up may remain as part of the Work.

1.06 FIELD CONDITIONS

A. Do not install materials when temperature is below 55 degrees F or above 120 degrees F. air surface and material.

B. Maintain this temperature range, 24 hours before, during, and 72 hours after installation of coating.

C. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

D. Restrict traffic from area where coating is being applied or is curing.

1.07 WARRANTY

A. Correct defective Work within a five year period after Date of Substantial Completion.

B. Warranty: Include coverage for bond to substrate.

C. Manufacturer's Warranty Permanent Protective Coating: Manufacturer shall provide standard product warranty executed by authorized company official. Term of warranty shall be 3 years from Date of Substantial Completion.

D. Applicator's Warranty: Applicator shall warrant the coating installation against defects caused by faulty workmanship or materials for a period of 3 years from Date of Substantial Completion. The warranty will cover the surfaces treated and will bind the applicator to repair, at his expense, any and all failures of the treated surfaces which are not due to structural weaknesses or other causes beyond applicator's control such as fire, earthquake, tornado and hurricane and other environmental issues contained within the structure. The warranty shall read as follows:

1. Warranty: The applicator warrants that, upon completion of the work, surfaces treated with the SilTanium coating will be and will remain free from failure resulting from defective workmanship or materials for a period of 3 years from Date of Substantial Completion. In the event that failure occurs within the warranty period from such causes, the applicator shall, at his sole expense, repair, replace or otherwise correct such defective workmanship or materials. Applicator shall not be liable for consequential damages and applicator's liability shall be limited to repair, replacement or correcting of defective workmanship or materials. Warranty full details available on SilTanium Technical Data Sheet. Applicator shall have no responsibility with respect to failure or other defects caused by structural failure or movement of the structure, or any other causes beyond Applicator's control.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. High-Performance Coatings:

1. PPG Architectural Finishes, Inc: www.ppgaf.com.
2. Sherwin-Williams Company; HydroGloss - Single Component WB Urethane: www.protective.sherwin-williams.com/industries or equal and is basis of design.
3. Tnemec Company, Inc: www.tnemec.com.

2.02 HIGH-PERFORMANCE COATINGS

A. Provide coating systems that meet the following minimum performance criteria, unless more stringent criteria are specified:

1. Abrasion Resistance: 145 mg loss, when tested in accordance with ASTM D4060, CS17 whell, 1000 cycles, 1 kg load.
2. Impact Resistance: >160 in.lbs, when tested in accordance with ASTM G14.
3. Adhesion: 850 psi, when tested in accordance with ASTM D4541.

4. Water Resistance: Passess, when tested in accordance with ASTM D4587, QUV-A, 3,000 hours.

5. Graffiti Resistance: Level 3 when tested in accordance with ASTM D6578.

2.03 MATERIALS

A. Coatings - General: Provide complete multi-coat systems formulated and recommended by manufacturer for the applications indicated, in the thicknesses indicated; number of coats specified does not include primer or filler coat.

B. Single Component, high performance, acrylic/polyester waterbased urethane; providing excellent UV resistance.

1. Product: HYDROGLOSS Single Component Waterbased Urethane - B65W181 manufactured by Sherwin Williams.

2. Filler for Concrete Masonry: LOX-ON Block Surfacer manufactured by Sherwin Williams.

3. Product Characteristics
   a. Finish: Gloss
   b. Volume Solids: 34%+/- 2%.
   c. Weight Solids: 43% +/- 2%.
   d. VOC (EPA Method 24): <250 g/L; 2.0 lb/gal
   e. Reducer/Clean-up: Water

C. Proprietary Products: SilTanium silica coating materials as follows:

1. SilTanium Corporation, SilTaniumÒ Coatings
   a. CC- Concrete
   b. AG- Anti-Graffiti
   c. Substitutions: No substitutions permitted.
   d. Source Quality: Obtain proprietary SilTaniumÒ products from the single manufacturer.
   e. For proprietary or semiproprietary specification, delete descriptive requirements below that are determined by product designations inserted above.

D. Protective Floor Coating: ASTM C-1027, ASTM C-1028, ASTM D 968-05

1. Installation: 1.0 to 2.5 mil wet film thickness yielding a 0.5 to 1.0 mil dry film thickness

E. Wearing Surface: smooth

F. Coverage: Proportions (by Volume) for example:

1. 150-300 square feet per gallon (Brick, Paver and Concrete)

2. 500 to 1,000 square feet per gallon (Tile and Grout and Painted Concrete)

G. Primers: As recommended by coating manufacturer for specific substrate, unless otherwise specified.

H. Shellac: Pure, white type.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that substrate surfaces are ready to receive work as instructed by the coating manufacturer. Obtain and follow manufacturer's instructions for examination and testing of substrates.

C. Cementitious Substrates: Do not begin application until substrate has cured 28 days minimum and measured moisture content is not greater than 16 percent.

3.02 PREPARATION

A. Clean surfaces of loose foreign matter.

B. Remove substances that would bleed through finished coatings. If unremovable, seal surface with shellac.

C. Remove finish hardware, fixture covers, and accessories and store.

D. Surface must be clean, dry and in sound condtion. Remove all oil, dust, grease, dirt, loose rust and other foreigh material to ensure adequate adhesion.

E. Minimum recommended surface preparation:

1.	Iron & Steel:	SSPC-SP2.
2.	Aluminum:	SSPC-SP-1
3.	Galvanizing:	SSPC-SP-1
4.	Concrete & Masonry:	SSPC-SP13/NACE 6 or ICRI No. 310.2, CSP 1-3

F. Ferrous Metal:

1. Remove loose rust, loose mill scale, and other foreign substances using hand tools according to SSPC-SP 2.

G. Concrete and Masonry:

1. Surface should be thoroughly clean and dry. Concrete and morar must be cured at least 28 days @75 degrees F (24C) Remove all loose mortar and foreighn material. Surface must be free of latiance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets, and other voids.

H. Protect adjacent surfaces and materials not receiving coating from spatter and overspray; mask if necessary to provide adequate protection. Repair damage.

3.03 PRIMING

A. Apply primer to all surfaces, unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

B. Concrete: Prior to priming, patch with masonry filler to produce smooth surface.

C. Concrete Masonry: Apply masonry filler to thickness required to fill holes and produce smooth surface; minimum thickness of 40 mils.

3.04 COATING APPLICATION

A. Apply coatings in accordance with manufacturer's instructions, to thicknesses specified.

B. Apply in uniform thickness coats, without runs, drips, pinholes, brush marks, or variations in color, texture, or finish. Finish edges, crevices, corners, and other changes in dimension with full coating thickness.

C. Apply SilTanium silica coating per manufacturer's specifications.

1. Apply coatings by brush, roller, low-pressure spray or other applicators according to coating manufacturer's written instructions. Use brushes or rollers only for exterior coating and where the use of other applicators is not practical.
2. Maintain a wet edge at all times.
3. Transparent (Clear) Finish: Use single coat to produce a smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, or other surface imperfections.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

B. Clean surfaces immediately of overspray, splatter, and excess material.

C. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

3.06 PROTECTION

A. Protect finished work from damage.

END OF SECTION 09960