

## **Technical Specifications**

**SECTION 02780**

**UNIT PAVERS**

**SECTION 09900**

**PAINTS AND COATINGS**

**SECTION 09220**

**PORTLAND CEMENT PLASTER**

## **SECTION 02780**

### **UNIT PAVERS**

#### **PART 1 GENERAL**

##### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

##### **1.2 SUMMARY**

- A. This Section provides general specifications for the following paving materials for hard landscaping:-
  - 1. Exterior sidewalk pavers set in mortar setting beds.
  - 2. Basalt pavers set in mortar setting beds.
  - 3. Natural stone paving, curbs, steps, etc. set in mortar setting beds.
  - 4. Stone facing and coping to works in site construction.
- B. Related Sections include the following:-
  - 1. Division 3 Section "Cast-in-Place Architectural Concrete".
  - 2. Division 3 Section "Architectural Precast Concrete".
  - 3. Division 4 Section "Dimension Stone Cladding".

##### **1.3 SUBMITTALS**

- A. Product Data: For materials other than water and aggregates.
- B. Product Data: For the following:-
  - 1. Pavers.
- C. Sieve Analyses: For aggregate setting-bed materials, according to ASTM C 136.
- D. Samples for Initial Selection: For the following:-
  - 1. Each type of unit paver indicated.
  - 2. Joint materials involving color selection.
- E. Samples for Verification:-
  - 1. Full-size units of each type of unit paver indicated. Assemble not less than five Samples of each type of unit on suitable backing and grout joints.
  - 2. Joint materials.
- F. Compatibility and Adhesion Test Reports: From latex-additive manufacturer for mortar and grout containing latex additives.

#### 1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of unit paver, joint material, and setting material from one source with resources to provide materials and products of consistent quality in appearance and physical properties.
- B. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store pavers on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Store liquids in tightly closed containers protected from freezing.

#### 1.6 PROJECT CONDITIONS

- A. Weather Limitations for Mortar and Grout:-
  - 1. Hot-Weather Requirements: Protect unit paver work when temperature and humidity conditions produce excessive evaporation of setting beds and grout. Provide artificial shade and windbreaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 38 deg C and higher.
    - a. When ambient temperature exceeds 38 deg C, or when wind velocity exceeds 13 km/h and ambient temperature exceeds 32 deg C, set pavers within 1 minute of spreading setting-bed mortar.

### PART 2 PRODUCTS

#### 2.1 EXTERIOR SIDEWALK PAVERS

- A. Pavers: Solid paving units similar to existing BCD sidewalks in all respects.
  - 1. Face Size and Shape: rectangular or shaped as instructed by Engineer.
  - 2. Color: As selected by the Engineer.
  - 3. Setting Materials: Cement and sand mortar.

#### 2.2 BASALT PAVERS

- A. Basalt Pavers: Shall be quarried from natural sources and shall have the following characteristics:-
1. Compressive length: 35800 psi according to ASTM C170.
  2. Density: 190 according to ASTM C97.
  3. Absorption by weight: 0.05% according to ASTM C97.
  4. Abrasion resistance: 0.026" according to ASTM C241.
  5. Size and Shape: rectangular or shaped as indicated or as otherwise instructed by Engineer.
  6. Thickness: Minimum 30mm.
  7. Color: Grey.
  8. Setting Materials: Cement and sand mortar.

### 2.3 STONE PAVERS

- A. Stone Pavers and Tiles: Comply with ASTM C 568. Limestone to have the following minimum properties:-
1. Density: 2560 kg/m<sup>3</sup>
  2. Compression Strength: 55 MPa, min.
  3. Porosity: little porosity
  4. Water Absorption: 3% for high density type.
- B. Description: Natural stone, each type shall be obtained from one strata of the quarry, free from faults and to shapes, sizes and patterns shown on the drawings.
1. Size and thickness: As indicated on drawings and Bill Items.
  2. Color: As indicated or as otherwise selected by the Engineer from manufacturer's full range.
  3. Finish: As indicated.
  4. Setting Materials: Cement and sand mortar.

### 2.4 AGGREGATE SETTING-BED MATERIALS

- A. Graded Aggregate for Base: Sound, crushed stone or gravel complying with ASTM D 2940, base material
- B. Sand for Leveling Course: Sound, sharp, washed, natural sand or crushed stone complying with gradation requirements in ASTM C 33 for fine aggregate.
- C. Stone Screenings for Leveling Course: Sound stone screenings complying with ASTM D 448 for Size No. 10.
- D. Sand for Joints: Fine, sharp, washed, natural sand or crushed stone with 100 percent passing 1.18-mm sieve and no more than 10 percent passing 0.075-mm sieve.
1. Provide sand of color needed to produce required joint color.

### 2.5 MORTAR SETTING-BED MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II.
- B. Sand: ASTM C 144.

- C. Latex Additive: Manufacturer's standard water emulsion, serving as replacement for part or all of gaging water, of type specifically recommended by latex-additive manufacturer for use with field-mixed portland cement mortar bed, and not containing a retarder.
  - 1. Manufacturer: Subject to compliance with requirements, provide latex additive by a manufacturer approved by the Architect.
- D. Water: Potable.
- E. Reinforcing Wire: Galvanized, welded, 1.57-mm diameter wire; 51-by-51-mm mesh; comply with ASTM A 185 and ASTM A 82 except for minimum wire size.

## 2.6 GROUT MATERIALS

- A. Sand-Portland Cement Grout: ANSI A108.10, composed of white or gray cement and white or colored sand as required to produce required color.
  - 1. Latex Additive: Manufacturer's standard water emulsion, serving as replacement for part or all of gaging water, of type specifically recommended by latex-additive manufacturer for use with field-mixed sand-portland cement grout.
    - a. Manufacturer: Subject to compliance with requirements, provide grout by a manufacturer approved by the Architect.
- B. Polymer-Modified Grout: ANSI A118.7, sanded grout; in color indicated.
  - 1. Manufacturer: Subject to compliance with requirements, provide grout by a manufacturer approved by the Architect.
  - 2. Product Type: Dry mix, containing ethylene vinyl acetate, in dry, redispersible form, prepackaged with other dry ingredients.
  - 3. Product Type: Two-component mix, containing acrylic resin in liquid-latex form and prepackaged dry-grout mix complying with ANSI A118.6 and recommended by latex-additive manufacturer.
  - 4. Product Type: Either dry mix, containing ethylene vinyl acetate, in dry, redispersible form, prepackaged with other dry ingredients, or two-component mix, containing acrylic resin or styrene-butadiene rubber in liquid-latex form and prepackaged dry-grout mix complying with ANSI A118.6 and recommended by latex-additive manufacturer.
- C. Grout Colors: As selected by Engineer from manufacturer's full range.
- D. Water: Potable.

## 2.7 MORTAR AND GROUT MIXES

- A. General: Comply with referenced standards and with manufacturers' written instructions for mix proportions, mixing equipment, mixer speeds, mixing containers, mixing times, and other procedures needed to produce setting-bed and joint materials of uniform quality and with optimum performance characteristics. Discard mortars and grout if they have reached their initial set before being used.
- B. Mortar-Bed Bond Coat: Mix neat cement or cement and sand with latex additive to a creamy consistency.
- C. Portland Cement-Lime Setting-Bed Mortar: Type M complying with ASTM C 270, Proportion Specification.

- D. Latex-Modified, Portland Cement Setting-Bed Mortar: Proportion and mix portland cement, sand, and latex additive for setting bed to comply with written instructions of latex-additive manufacturer and as necessary to produce stiff mixture with a moist surface when bed is ready to receive pavers.
- E. Latex-Modified, Portland Cement Slurry Bond Coat: Proportion and mix portland cement, sand, and latex additive for slurry bond coat to comply with written instructions of latex-additive manufacturer.
- F. Job-Mixed Portland Cement Grout: Proportion and mix job-mixed portland cement and sand to match setting-bed mortar, except omit hydrated lime and use enough water to produce a pourable mixture.
- G. Job-Mixed, Polymer-Modified Portland Cement Grout: Add liquid-latex additive to portland cement and sand in proportion and concentration recommended by liquid-latex manufacturer. Proportion cement and sand to comply with written instructions of latex-additive manufacturer.
  - 1. Pigmented Grout: Select and proportion pigments with other ingredients to produce color required. Do not exceed pigment-to-cement ratio of 1:10, by weight.
  - 2. Colored-Aggregate Grout: Produce color required by combining colored sand with portland cement of selected color.
- H. Packaged, Polymer-Modified Grout Mix: Proportion and mix grout ingredients according to grout manufacturer's written instructions.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine areas indicated to receive paving, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.
  - 2. Where pavers are to be installed over waterproofing, examine waterproofing installation, with waterproofing Installer present, for protection from paving operations. Examine areas where waterproofing system is turned up or flashed against vertical surfaces and horizontal waterproofing. Proceed with installation only after protection is in place.

### 3.2 PREPARATION

- A. Remove substances from concrete substrates that could impair mortar bond, including curing and sealing compounds, form oil, and laitance.
- B. Clean concrete substrates to remove dirt, dust, debris, and loose particles.
- C. Proof-roll prepared sub-grade according to requirements in Division 2 Section "Earthwork" to identify soft pockets and areas of excess yielding. Proceed with unit paver installation only after deficient sub-grades have been corrected and are ready to receive base course for unit pavers.

### 3.3 INSTALLATION, GENERAL

- A. Do not use unit pavers with chips, cracks, voids, discolorations, and other defects that might be visible in finished work.
- B. Mix pavers from several pallets or cubes, as they are placed, to produce uniform blend of colors and textures.
- C. Cut unit pavers with motor-driven masonry saw equipment to provide clean, sharp, un-chipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.
  - 1. For concrete pavers, a block splitter may be used.
- D. Joint Pattern: As indicated.
- E. Pavers over Waterproofing: Exercise care in placing pavers and setting materials over waterproofing so protection materials are not displaced and waterproofing is not punctured or otherwise damaged. Carefully replace protection materials that become displaced and arrange for repair of damaged waterproofing before covering with paving.
  - 1. Provide joint filler at waterproofing that is turned up on vertical surfaces.
- F. Tolerances: Do not exceed 1.6-mm unit-to-unit offset from flush (lippage) nor 3 mm in 600 mm and 6 mm in 3 m from level, or indicated slope, for finished surface of paving.
- G. Expansion and Control Joints: Provide for sealant-filled joints at locations and of widths indicated. Provide foam filler as backing for sealant-filled joints. Install joint filler before setting pavers. Sealant materials and installation are specified in Division 7 Section "Joint Sealants."
- H. Expansion and Control Joints: Provide joint filler at locations and of widths indicated. Install joint filler before setting pavers. Make top of joint filler flush with top of pavers.
- I. Provide edge restraints as indicated. Install edge restraints before placing unit pavers.
  - 1. Install edge restraints to comply with manufacturer's written instructions. Install stakes at intervals required to hold edge restraints in place during and after unit paver installation.
  - 2. For metal edge restraints with top edge exposed, drive stakes at least 25 mm below top edge.
  - 3. Install job-built concrete edge restraints to comply with requirements in Division 3 Section "Cast-in-Place Concrete."
  - 4. Where pavers set in mortar bed are indicated as edge restraints for pavers set in aggregate setting bed, install pavers set in mortar and allow mortar to cure before placing aggregate setting bed and remainder of pavers. Cut off mortar bed at a steep angle so it will not interfere with aggregate setting bed.
  - 5. Where pavers embedded in concrete are indicated as edge restraints for pavers set in aggregate setting bed, install pavers embedded in concrete and allow concrete to cure before placing aggregate setting bed and remainder of pavers. Hold top of concrete below aggregate setting bed.
- J. Provide steps made of pavers as indicated. Install paver steps before installing adjacent pavers.
  - 1. Where pavers set in mortar bed are indicated for steps constructed adjacent to pavers set in aggregate setting bed, install steps and allow mortar to cure before placing aggregate

setting bed and remainder of pavers. Cut off mortar bed at a steep angle so it will not interfere with aggregate setting bed.

### 3.4 AGGREGATE SETTING-BED APPLICATIONS

- A. Compact soil sub-grade uniformly to at least 95 percent of ASTM D 698 laboratory density.
- B. Proof-roll prepared sub-grade to identify soft pockets and areas of excess yielding. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.
- C. Place separation geotextile over prepared sub-grade, overlapping ends and edges at least 300 mm.
- D. Place aggregate base, compact by tamping with plate vibrator, and screed to depth indicated.
- E. Place aggregate base, compact to 100 percent of ASTM D 1557 maximum laboratory density, and screed to depth indicated.
- F. Place drainage geotextile over compacted base course, overlapping ends and edges at least 300 mm.
- G. Place leveling course and screed to a thickness of 25 to 38 mm, taking care that moisture content remains constant and density is loose and constant until pavers are set and compacted.
- H. Treat leveling course with herbicide to inhibit growth of grass and weeds.
- I. Set pavers with a minimum joint width of 1.5 mm and a maximum of 3 mm, being careful not to disturb leveling base. If pavers have spacer bars, place pavers hand tight against spacer bars. Use string lines to keep straight lines. Fill gaps between units that exceed 10 mm with pieces cut to fit from full-size unit pavers.
- 1. When installation is performed with mechanical equipment, use only unit pavers with spacer bars on sides of each unit.
- J. Vibrate pavers into leveling course with a low-amplitude plate vibrator capable of a 16 to 22kN compaction force at 80 to 90 Hz. Perform at least three passes across paving with vibrator. Vibrate under the following conditions:
  - 1. After edge pavers are installed and there is a completed surface or before surface is exposed to rain.
  - 2. Before ending each day's work, fully compact installed concrete pavers to within 900 mm of the laying face. Cover pavers that have not been compacted, and leveling course on which pavers have not been placed, with non-staining plastic sheets to protect them from rain.
- K. Spread dry sand and fill joints immediately after vibrating pavers into leveling course. Vibrate pavers and add sand until joints are completely filled, then remove excess sand. Leave a slight surplus of sand on the surface for joint filling.
- L. Do not allow traffic on installed pavers until sand has been vibrated into joints.
- M. Repeat joint-filling process 30 days later.



### 3.5 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace unit pavers that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Provide new units to match adjoining units and install in same manner as original units, with same joint treatment and with no evidence of replacement.
- B. Pointing: During tooling of joints, enlarge voids or holes and completely fill with grout. Point up joints at sealant joints to provide a neat, uniform appearance, properly prepared for sealant application.
- C. Cleaning: Remove excess grout from exposed paver surfaces; wash and scrub clean.
  - 1. Remove temporary protective coating from brick pavers as recommended by protective coating manufacturer and as acceptable to unit paver and grout manufacturer. Trap and remove coating to prevent it from clogging drains.

END OF SECTION 02780

## **SECTION 09220**

### **PORTLAND CEMENT PLASTER**

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section includes Portland cement plaster system.
- B. Related Sections:
  - 1. Division 3 - Concrete.
  - 2. Division 4 - Masonry.
  - 3. Division 5 - Metals.
  - 4. Division 8 - Doors and Windows.

##### 1.2 REFERENCES

- A. ASTM International:
  - 1. ASTM C91 - Standard Specification for Masonry Cement.
  - 2. ASTM C150 - Standard Specification for Portland Cement.
  - 3. ASTM C206 - Standard Specification for Finishing Hydrated Lime.
  - 4. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes.
  - 5. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
  - 6. ASTM C847 - Standard Specification for Metal Lath.
  - 7. ASTM C897 - Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters.
  - 8. ASTM C926 - Standard Specification for Application of Portland Cement-Based Plaster.
  - 9. ASTM C932 - Standard Specification for Surface-Applied Bonding Agents for Exterior Plastering.
  - 10. ASTM C933 - Standard Specification for Welded Wire Lath.
  - 11. ASTM C979 - Standard Specification for Pigments for Integrally Colored Concrete.
  - 12. ASTM C1002 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases.
  - 13. ASTM C1032 - Standard Specification for Woven Wire Plaster Base.
  - 14. ASTM C1063 - Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.
  - 15. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
  - 16. ASTM C1328 - Standard Specification for Plastic (Stucco) Cement.
  - 17. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.

- B. Federal Specification Unit:
  - 1. FS UU-B-790 - Building Paper, Vegetable Fiber: (Kraft, Waterproofed, Water Repellent and Fire Resistant).
- C. National Terrazzo and Mosaic Association:
  - 1. NTMA - Terrazzo Specifications Guide.
- D. Portland Cement Association:
  - 1. PCA - Portland Cement Plaster (Stucco) Manual.
- E. Underwriters Laboratories Inc.:
  - 1. UL - Fire Resistance Directory.
- F. Intertek Testing Services (Warnock Hersey Listed):
  - 1. WH - Certification Listings.

### 1.3 PERFORMANCE REQUIREMENTS

- A. Conform to ASTM E119 and applicable code for fire rated assemblies, and as follows:
  - 1. Fire Rated Partitions: Listed assembly by UL or WH.
  - 2. Fire Rated Ceilings Bulkheads and Interior Soffits: Listed assembly by UL or WH.
  - 3. Fire Rated Structural Column Framing: Listed assembly by UL or WH.
  - 4. Fire Rated Structural Beam Framing: Listed assembly by UL or WH.
- B. Fabricate vertical elements to limit finish surface to 1:360 deflection under lateral point load of 445 N.
- C. Fabricate horizontal elements to limit finish surface to 1:360 deflection under superimposed dead load and wind uplift loads.

### 1.4 SUBMITTALS

- A. General Requirements: Requirements for submittal procedures.
- B. Product Data: Submit data on plaster materials, characteristics and limitations of products specified.
- C. Samples: Submit two samples, size as directed, illustrating finish color and texture.

### 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ASTM C926 and PCA Portland Cement Plaster (Stucco) Manual.
- B. Maintain one copy of each document on site.

### 1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.

- B. Installer: Company specializing in performing Work of this section with minimum five years documented experience.

#### 1.7 MOCKUP

- A. General Requirements: Quality requirements for mockup.
- B. Construct mock-up, size as directed by the Engineer, including exterior and interior wall and ceiling system illustrating surface finish.
- C. Locate where directed by the Engineer.
- D. Remove mockup when directed by the Engineer.

#### 1.8 PRE-INSTALLATION MEETINGS

- A. General Requirements: Administrative requirements for pre-installation meeting.
- B. Convene minimum one week prior to commencing work of this section.

#### 1.9 ENVIRONMENTAL REQUIREMENTS

- A. General Requirements: Product requirements.
- B. Exterior Plaster: Do not apply plaster when ambient temperature is less than 4°C.
- C. Interior Plaster: Do not apply cement plaster unless minimum temperature of 10°C has been and continues to be maintained in building for minimum 48 hours prior to plaster application, during application, and until cured.

### PART 2 PRODUCTS

#### 2.1 PORTLAND CEMENT PLASTER

- A. Manufacturer: Any internationally recognized manufacturer having an official technical agreement to conformity with standards for the product.

#### 2.2 COMPONENTS:

- A. Plaster Materials:
  - 1. Cement: ASTM C150, Type I Portland cement.
  - 2. Aggregate: Natural sand, within the following sieve sizes and percentage retained limits:

| <u>Sieve Size</u> | <u>Percent Retained</u> |
|-------------------|-------------------------|
| 4.75 mm           | 0                       |
| 2.36 mm           | 0 to 5                  |
| 1.18 mm           | 5 to 30                 |
| 0.60 mm           | 30 to 65                |
| 0.30 mm           | 65 to 95                |
| 0.15 mm           | 90 to 100               |

3. Water: Clean, fresh, potable and free of mineral or organic matter capable of affecting plaster.
  4. Bonding Agent: ASTM C932; type recommended for bonding plaster to concrete and concrete masonry surfaces.
  5. Admixtures: Type as per manufacturer instructions.
  6. Glass Fibers: 13 mm nominal length; meeting requirements of ASTM C1116.
  7. Color Pigment: ASTM C979 mineral oxide or synthetic type, color as selected by the Engineer.
  8. Sand for finish coats shall be clean, graded silica sand, 100% passing a 30 mesh screen.
- B. Furring and Lathing:
1. Expanded Metal Lath: ASTM C847, galvanized, to suit application.
  2. Woven Wire Plaster Base: ASTM C1032, having 25 mm openings.
  3. Welded Wire Lath: ASTM C933.
  4. Backing Material: FS UU-B-790 Grade D.
  5. Casing and Corner Beads, and Base Screed: Formed sheet steel, depth governed by plaster thickness, maximum possible lengths, expanded metal or solid flanges, with square, bullnosed, or beveled edges; galvanized.
  6. Corner Mesh: Formed sheet steel, minimum 0.5 mm thick, perforated or expanded flanges shaped to permit complete embedding in plaster, minimum 50 mm size; galvanized.
  7. Strip Mesh: Expanded metal lath, minimum 0.5 mm thick, 50 mm wide x 600 mm long; galvanized.
  8. Control and Expansion Joint Accessories: Formed sheet steel, accordion profile, 50 mm expanded metal or solid flanges each side, galvanized.
  9. Anchorage: Tie wire, nails, and other metal supports, of type and size to suit application; to rigidly secure materials in place, galvanized.
  10. Fasteners: ASTM C1002, self drilling, self tapping screws.
  11. Polyethylene Sheet: Clear, 0.15 mm thick.
  12. Access Panels in Plaster on Metal Furring (If Any): Formed stainless steel type 316, one hour fire rating.
- C. Acoustic Accessories:
1. Resilient Channels: Formed steel, minimum 0.5 mm thick; face, profile and width as indicated on drawings, splicing permitted; galvanized.
  2. Acoustic Insulation: ASTM C665, friction fit type, unfaced; Thickness as per manufacturer's instructions.
  3. Acoustic Sealant: Non-hardening, non-skinning, for use with plaster system.

## 2.3 MIXES

- A. Except where hand-mixing of small batches is approved by the Engineer, mechanical mixers of an approved type shall be used for the mixing of plaster. Frozen, caked or lumped materials shall not be used.
- B. Mechanical mixers, mixing boxes and tools shall be cleaned after mixing each batch and kept free of plaster from previous mixes. Plaster shall be thoroughly mixed with the proper amount of water uniform in colour and consistency. Retempering will not be permitted and all plaster which has begun to stiffen shall be discarded.

- C. All tools, implements, vessels and surfaces shall at all time be kept scrupulously clean and strict precautions shall be taken to avoid the plasterer or other materials becoming contaminated by pieces of partially set material which would tend to retard or accelerate the setting time.
- A. Spatterdash Coat (Rasheh): 1 part Portland cement and maximum 2 parts of sand, proportioned by volume.
- E. Internal plaster shall be (1:4) composed of 350 kg of cement per m<sup>3</sup> of sand. Internal plaster shall be 15 mm thick for walls and ceilings.
- F. External plaster shall be (1:3) composed of 475 kg of cement per m<sup>3</sup> of sand. External plaster shall be 20 mm thick.
- G. Internal and external plasters shall be executed in one single coat work in addition to the spatterdash (Rasheh). If more than one coat is required, approved galvanized wire mesh reinforcement shall be used.
- H. Mix and proportion cement plaster in accordance with approved methodology.
- I. Add glass fibers to plaster at rate of 8.0 kg per cubic meter of plaster.
- J. Add admixtures as instructed by the manufacturer.
- K. Mix only as much plaster as can be used prior to initial set.
- L. Add color pigments to finish coat.
- M. Mix materials dry, to uniform color and consistency, before adding water.
- N. Protect mixtures from freezing, frost, contamination, and excessive evaporation.
- O. Do not retemper mixes after initial set has occurred.

#### 2.4 READY MIX PLASTER

- A. For External Applications: Fiber reinforced cementitious ready mix plaster as produced by "Sodamco" or similar approved.
  - 1. Appearance: Grey powder.
  - 2. Grain Size: 0.02 to 1.5 mm.
  - 3. Composition: Portland cement, selected sand, fibers and additives.
  - 4. Wet Mix Life: Less than 1 hour.
  - 5. Compressive Strength: 10 MPa.
  - 6. Mix: 50 kg bag with 9 to 10 liters of clean water.
  - 7. Coat Thickness: 15 mm.
  - 8. Consumption: Around 2.0 kg/m<sup>2</sup>/1mm thickness.
- B. For Internal Applications: Cementitious ready mix plaster as produced by "Sodamco" or similar approved.
  - 1. Appearance: Grey powder.
  - 2. Grain Size: 0.02 to 1.5 mm.

3. Composition: Portland cement, selected sand and additives.
4. Wet Mix Life: Less than 1 hour.
5. Mix: 50 kg bag with 7 to 8 liters of clean water.
6. Coat Thickness: 15 mm.
7. Consumption: Around 1.7 kg/m<sup>2</sup>/1mm thickness.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. General Requirements: Administrative requirements for coordination and project conditions.
- B. Masonry: Verify joints are cut flush and surface is ready to receive work of this section. Verify no bituminous or water repellent coatings exist on masonry surface.
- C. Concrete: Verify surfaces are flat, honeycomb and are filled flush, and surfaces are ready to receive work of this section. Verify no bituminous, water repellent, or form release agents exist on concrete surface that are detrimental to plaster bond.
- D. Metal Lath and Accessories: Verify lath is flat, secured to substrate, and joint and surface perimeter accessories are in place.
- E. Mechanical and Electrical: Verify services within surfaces to be plastered (walls, ceiling, etc.) have been tested and approved.

### 3.2 PREPARATION

- A. Dampen masonry surfaces to reduce excessive suction.
- B. Clean concrete surfaces of foreign matter. Clean surfaces using acid solutions, solvents, or detergents. Wash surfaces with clean water.
- C. Roughen smooth concrete surfaces and apply bonding agent.
- D. Galvanized wiremesh reinforcement shall be provided wherever blockwalls abut against concrete columns, beams or slabs, and plaster finish is required to continue over both blockwork and concrete surfaces. The galvanized wiremesh reinforcement shall consist of 20 cm wide strips and shall cover the whole length of the joint, horizontally as well as vertically and shall be securely nailed, plugged or stapled in place to both surfaces at intervals not exceeding 40 cm at both edges.
- B. Plastering shall not be commenced until all mechanical and electrical services, conduits, pipes and fixtures have been installed complete and tested.
- F. All walls shall be wetted immediately prior to applying the first spatterdash coat (Rasheh) to provide key for subsequent coats.

### 3.3 EXISTING WORK

- A. Extend existing Portland cement plaster installations using materials and methods as specified.
- B. Repair existing damaged Portland cement plaster which remains or to be remodeled.

### 3.4 INSTALLATION

- A. Installation of Lathing Materials:
  - 1. Apply one or two layers of Grade D building paper over substrate; lap edges 50 mm minimum. Fasten in place.
  - 2. Install metal lath in accordance with ASTM C1063.
- B. Installation of Accessories:
  - 1. Install accessories in accordance with ASTM C1063.
  - 2. Place corner bead at external wall corners; fasten at outer edges of lath only.
  - 3. Place strip mesh diagonally at corners of lathed openings. Secure rigidly in place.
  - 4. Place casing beads at terminations of plaster finish. Butt and align ends. Secure rigidly in place.
  - 5. Install door and glazed frames plumb and level in opening. Secure rigidly in place.
  - 6. Position to provide convenient access to concealed work requiring access.
- C. Control and Expansion Joints:
  - 1. Install interior control and expansion joints as indicated on Drawings.
  - 2. Install exterior contraction joints after initial set, scribed as indicated on Drawings by cutting through 2/3 of cement plaster depth, neatly, in straight lines.
  - 3. For horizontal exterior surfaces, install control and expansion joints as indicated on Drawings.
  - 4. For vertical exterior surfaces install control and expansion joints as indicated on Drawings.
  - 5. Establish control and expansion joints with specified joint device.
- D. Plastering:
  - 1. Plaster shall be thoroughly mixed with the proper amount of water until uniform in colour and consistency. Retempering will not be permitted and all plaster which has begun to stiffen shall be discarded.
  - 2. All plastering shall be executed in a neat workmanlike manner and corners shall be true, straight and plumb.
  - 3. All tools, implements, vessels and surfaces shall at all times be kept scrupulously clean and strict precautions shall be taken to avoid the plaster or other materials becoming contaminated by pieces of partially set materials which would tend to retard or accelerate the setting time.
  - 4. The temperature before, during and after application of plaster shall be uniformly maintained above 12°C. The heat shall be well distributed in all areas, and concentration or irregular heat on plaster surfaces shall be prevented.
  - 5. Ventilation shall be provided to properly dry the plaster during and



subsequent to its application. Plaster shall be prevented from too-rapid drying.

6. All ingredients entering the several mixes shall be proportioned and measured by means of calibrated boxes or containers of such nature that the quantities can be accurately checked at any time. Ingredients shall be thoroughly mixed and then cleaned from the mixer and tools after each mix.
7. Plaster shall be rodded and straight-edged to uniform thickness in true planes flush to the required surface and flush with outlet boxes, and similar details and steel-troweled smooth and level with sharp, straight arises and true angles. Plaster shall be free from laps, cracks, trowels marks, or other structural defects or surface imperfections.
8. Where plaster finish is flush with adjoining surface or where tooled joint is indicated on the drawings, the plaster shall be grooved back with smallest available edging tool, to control any cracking at these points.
9. At doors and frames and other openings, all plaster shall be keyed in, except that across head of openings and 12 inches down each side plaster shall be cut free of frame, or grounds with edge of trowel, after stiffening but before setting, to allow for expansion.
10. All pressed metal door frames in walls shall be grouted full with Portland cement fine concrete after being completely anchored in place and prior to application of plaster. Rake grout to allow plaster to enter jamb.
11. Apply the spatterdash coat (Rasheh) and allow to dry before rendering is commenced.
12. Moist cure each coat. Apply successive coat immediately following initial set of scratch coat.
13. After curing, dampen previous coat prior to applying finish coat.
14. Apply finish coat to indicated color and texture.
15. Plumb, square and level.
16. Avoid excessive working of surface. Delay troweling as long as possible to avoid drawing excess fines to surface.
17. Moist cure finish coat for minimum period of 48 hours.

E. Waterproof Plaster to External Surfaces:

1. All surfaces to be plastered shall be clean and free from dust, grease, loose or projecting mortar and all traces of salts and are to be thoroughly sprayed with water but all free water shall be allowed to disappear from the surface before the plaster is applied.
2. Efflorescence shall be brushed off and all dust and foreign matter removed. All waterproof plastering shall be in two coats and shall contain 475 kg of cement per one meter cube of sand mixed with an approved waterproofing admixture compound and applied in accordance with manufacturer's instructions and shall be applied and allowed to dry before rendering is commenced. All walls shall be wetted immediately prior to applying the first coat of rendering and this shall be allowed to thoroughly dry out before the next coat is applied.

### 3.5 ERECTION TOLERANCES

- A. General Requirements: Quality requirements for tolerances.
- B. Maximum Variation from Flat Surface: 3 mm in 3 m.

### 3.6 ADJUSTING

- A. General Requirements: Execution requirements for testing, adjusting and balancing.
- B. Remove damaged or defective plaster by cutting and replace with specified materials to match adjacent plaster.
- C. Fog coat non-uniform or discolored plaster with finish coat materials spray applied to entire finish coat surface.

### 3.7 SCHEDULES

- A. As indicated on drawings and where directed by the Engineer.

END OF SECTION

## **SECTION 09900**

### **PAINTS AND COATINGS**

#### **PART 1 GENERAL**

##### **1.1 SUMMARY**

- A. Section includes surface preparation and field application of paints, stains, varnishes, and other coatings.
- B. Related Sections:
  - 1. Division 5 - Metals: Shop primed metal items.
  - 2. Division 6 - Wood and Plastic: Shop finished woodwork.
  - 3. Division 8 - Doors and Windows: Shop finished doors, windows and panels.
  - 4. Division 15 - Mechanical: Mechanical Identification.
  - 5. Division 16 - Electrical: Electrical Identification.

##### **1.2 REFERENCES**

- A. ASTM International:
  - 1. ASTM D16 - Standard Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
  - 2. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
- B. Painting and Decorating Contractors of America:
  - 1. PDCA - Architectural Painting Specification Manual.
- C. SSPC: The Society for Protective Coatings:
  - 1. SSPC - Steel Structures Painting Manual.

##### **1.3 DEFINITIONS**

- A. Conform to ASTM D16 for interpretation of terms used in this section.

##### **1.4 SUBMITTALS**

- A. General Requirements: Requirements for submittal procedures.
- B. Product Data: Submit data on finishing products and special coating.
- C. Samples:
  - 1. Submit two paper chip samples each 300 x 300 mm, illustrating color range and textures available for each surface finishing product scheduled.
  - 2. Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded.
- D. Manufacturer's Installation Instructions: Submit special surface preparation procedures, and substrate conditions requiring special attention.

## 1.5 CLOSEOUT SUBMITTALS

- A. General Requirements: Execution requirements for closeout procedures.
- B. Operation and Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

## 1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.
- B. Applicator: Company specializing in performing work of this section with minimum five years documented experience.

## 1.7 MOCKUP

- A. General Requirements: Quality requirements for mock-up.
- B. Construct mockup panel, size as directed by the Engineer, illustrating special coating color, texture, and finish.
- C. Construct door and frame assembly illustrating painting, stain and varnish, coating color, texture, and finish.
- D. Locate where directed by the Engineer.
- E. Remove mockup when directed by the Engineer.

## 1.8 PRE-INSTALLATION MEETINGS

- A. General Requirements: Administrative requirements for pre-installation meeting.
- B. Convene minimum one week prior to commencing work of this section.

## 1.9 DELIVERY, STORAGE AND HANDLING

- A. General Requirements: Product requirements for product storage and handling.
- B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- C. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- D. Storage of Paint Materials: Store at minimum ambient temperature of 7°C and maximum ambient temperature of 32°C in ventilated area, and as required by manufacturer's instructions.

#### 1.10 ENVIRONMENTAL REQUIREMENTS

- A. General Requirements: Product requirements.
- B. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.
- C. Do not apply exterior coatings during rain/snow, or when relative humidity or moisture content of surfaces exceed those required by paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 7°C for interiors; 10°C for exterior, unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish Finishes: 18°C for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 860 lx measured mid-height at substrate surface.

#### 1.11 SEQUENCING

- A. General Requirements: Requirements for Work sequence.
- B. Sequence application to the following:
  - 1 Do not apply finish coats until paintable sealant is applied.
  - 2 Back prime wood trim before installation of trim.

#### 1.12 WARRANTY

- A. General Requirements: Execution requirements for product warranties and bonds.
- B. Furnish five year manufacturer warranty for paints and coatings.

#### 1.13 EXTRA MATERIALS

- A. General Requirements: Execution requirements for spare parts and maintenance products.
- B. Supply 4 liters of each color, type and surface texture; store where directed.
- C. Label each container with color, type, texture and room locations in addition to manufacturer's label.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURER

- A. Paint, Transparent Finishes, Stain, Primer Sealers, Block Filler, and Field Catalyzed Coatings Manufacturers: Any internationally recognized manufacturers having an official technical agreement to conformity with standards for the products.

- B. Furnish materials as specified, as shown on drawings and to Engineer's satisfaction.

## 2.2 COMPONENTS

- A. Coatings: Ready mixed, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating; prepare coatings for good flow and brushing properties, capable of drying or curing, and free of streaks or sags.
- B. Use products of the same manufacturer for succeeding coats. Where primer is shop applied to steel, subsequent coats may be the product of another manufacturer provided the coatings are mutually compatible.
- C. Colors, textures and degree of luster shall be as selected by the Engineer. Tint prime and undercoats approximately to the shade of the final coat but with sufficient variation to distinguish them from the preceding coat. Proprietary names used to designate colors or materials, are not intended to imply that products named are required, or to exclude equal products of other manufacturers.
- D. Colors of finishes shall not necessarily be manufacturer's stock colors. All materials for finishing coats shall be factory mixed and shall be of a standard quality equal to that of the standard colors of the material specified.
- E. Specular Gloss Range:
1. Ranges determined in accordance with ASTM D523:

| <u>Sheen</u> | <u>Geometry / Degree</u> | <u>Gloss / Range</u> |
|--------------|--------------------------|----------------------|
| Flat         | 85                       | Below 15             |
| Eggshell     | 60                       | 5 to 20              |
| Semi-Gloss   | 60                       | 30 to 65             |
| Gloss        | 60                       | Over 65              |
  2. In locations where ambient temperature and humidity conditions encourage the ready formation of mildew, use paints with additional mildew inhibitive agent incorporate during the manufacturing process, of type and in concentration recommended by the paint manufacturer to withstand such mildew formation.
- F. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified.
- G. Patching Materials: Latex filler.
- H. Fastener Head Cover Materials: Latex filler.

## 2.3 HIGH-PERFORMANCE COATINGS COMPONENTS

- A. General: Furnish complete multi-coat systems formulated and recommended by manufacturer for applications indicated, in thicknesses indicated; number of coats specified does not include primer or filler coat.
1. Lead content: None.
  2. Chromium content, as zinc chromate or strontium chromate: None.
  3. Maximum VOC content: As required by applicable regulations.

- 4. Colors: As selected from manufacturer's standard colors or as per Drawings.
- B. Epoxy Coating: Two coats; polyamide, or polyester epoxy; complying with MIL C-22750; gloss, semi-gloss, or eggshell finish.
  - 1. Percentage of solids by volume: To manufacturer's recommendations to suit project requirements.
  - 2. Dry film thickness per coat: 150 microns minimum, unless otherwise shown on drawings.
  - 3. Comply with performance requirements of MIL C-22750
- C. Epoxy Floor Coating: Two coats, two-part, polyamide or polyester epoxy, non-skid.
  - 1. Percentage of solids by volume: To manufacturer's recommendations to suit project requirements.
  - 2. Dry film thickness per coat: 200 microns minimum including aggregates, unless otherwise shown on drawings.
  - 3. Comply with performance requirements of MIL C-22750.
- D. Primers: As recommended by coating manufacturer for specific substrate with a minimum of 50 microns dry film thickness.
- E. Shellac: Pure, white type.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. General Requirements: Administrative requirements for coordination and project conditions.
- B. Verify surfaces and substrate conditions are ready to receive Work as instructed by product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report conditions capable of affecting proper application.
- D. Test shop applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following values:
  - 1. Plaster and Gypsum Boards: 12 percent.
  - 2. Masonry, Concrete and Concrete Unit Masonry: 12 percent.
  - 3. Wood: 15 percent, measured in accordance with ASTM D 4442.
  - 4. Concrete Floors: 8 percent.

### 3.2 PREPARATION

- A. Surface Appurtenances: Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
- B. Surfaces: Correct defects and clean surfaces capable of affecting work of this section.

Remove or repair existing coatings exhibiting surface defects.

- C. Marks: Seal with shellac those which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tetra-sodium or tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- F. Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply latex based, or compatible sealer or primer.
- G. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.
- H. Concrete Floors: Remove contaminations, acid etch and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- I. Copper Surfaces Scheduled for Natural Oxidized Finish: Remove contamination by applying oxidizing solution of copper acetate and ammonium chloride in acetic acid. Rub on repeatedly for required effect. Once attained, rinse surfaces with clear water and allow to dry.
- J. Copper Surfaces Scheduled for Paint Finish: Remove contamination by steam, high pressure water, or solvent washing. Clean and immediately apply vinyl etch primer.
- K. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.
- L. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- M. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with solution of sodium meta-silicate after thoroughly wetting with water. Allow for drying.
- N. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- O. Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- P. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust.



Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.

- Q. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.
- R. Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.
- S. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior paintable caulking compound after prime coat has been applied.
- T. Exterior Wood Scheduled to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior caulking compound after sealer has been applied.
- U. Glue-Laminated Wood: Prior to finishing, wash surfaces with solvent, remove grease and dirt.
- V. Wood Doors Scheduled for Painting: Seal wood door top and bottom edge surfaces with clear sealer or tinted primer.
- W. Metal Doors Scheduled for Painting: Prime metal door top and bottom edge surfaces.

### 3.3 EXISTING WORK

- A. Extend existing paint and coatings installations using materials and methods compatible with existing installations and as specified.

### 3.4 APPLICATION

- A. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- B. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.
- C. Sand wood and metal surfaces lightly between coats to achieve required finish.
- D. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- E. Where clear finishes are required, tint fillers to match wood. Work fillers into grain before set. Wipe excess from surface.
- F. Prime concealed surfaces of interior and exterior woodwork with primer paint.
- G. Prime concealed surfaces of interior wood surfaces scheduled to receive stain or

varnish finish with gloss varnish reduced 25 percent with thinner.

- H. Finishing Mechanical and Electrical Equipment:
  - 1. Refer to Divisions 15 and 16 for schedule of color coding and identification banding of mechanical and electrical equipment, duct, piping, conduit, etc.
  - 2. Paint shop primed equipment.
  - 3. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
  - 4. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are shop finished.
  - 5. Paint interior surfaces of air ducts and convectors and baseboard heating cabinets visible through grilles and louvers with one coat of flat black paint to visible surfaces. Paint dampers exposed behind louvers, grilles, and convectors and baseboard cabinets to match face panels.
  - 6. Paint exposed conduit and electrical equipment occurring in finished areas.
  - 7. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
  - 8. Color code equipment, piping, conduit and exposed duct work in accordance with requirements indicated or color schedule. Color band and identify with flow arrows, names and numbering.
  - 9. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.
- I. Install Work as specified, as shown on drawings, in accordance with manufacturer's instructions, and to the satisfaction of the Engineer.

### 3.5 INSTALLATION - FIBER REINFORCED EPOXY COATING/LINING

- A. Prepare the surfaces including sandblasting and air cleaning.
- B. Apply one layer of an approved coal tar pitch epoxy coating, 200 microns thick, as per manufacturer's recommendations.
- C. Place one layer of approved fiberglass reinforcements before the applied epoxy coating is completely dry, as per manufacturer's recommendations.
- D. Apply another two layers of the approved coal tar pitch epoxy coating, 200 microns thick each.
- E. Place plastic panel facing with approved adhesive materials.

### 3.6 FIELD QUALITY CONTROL

- A. General Requirements: Quality requirements for testing and inspection services, and execution requirements for testing, adjusting and balancing.
- B. Inspect and test questionable coated areas in accordance with applicable code.

### 3.7 CLEANING

- A. General Requirements: Execution requirements for final cleaning.
- B. Collect waste material which may constitute fire hazard, place in closed metal containers, and remove daily from site.

### 3.8 SCHEDULES - SHOP PRIMED ITEMS FOR SITE FINISHING

- A. Shop primed items for site finishing are stated under Division 5 (i.e.: Section 05500, etc.)

### 3.9 SCHEDULES - EXTERIOR SURFACES

- A. Wood - Painted (Opaque):
  - 1. One coat of latex or alkyd primer sealer.
  - 2. Two coats of alkyd or latex enamel, gloss or semi-gloss.
- B. Wood - Transparent:
  - 1. Two coats of stain.
- C. Wood - Shingles and Shakes:
  - 1. One coat of stain or clear sealer.
  - 2. Two coats of clear sealer.
- D. Glue-Laminated Wood and Wood Timber Members:
  - 1. One coat of stain or sealer.
  - 2. Two coats of varnish, gloss or semi-gloss.
- E. Pavement Markings:
  - 1. Two coats of thermoplastic reflectorized paint, yellow or white.
- F. Concrete, Concrete Block, Restored Masonry and Cement Plaster:
  - 1. One coat of primer sealer latex or alkyd.
  - 2. Two coats of latex or alkyd, flat.
- G. Gypsum Board and Cement Plaster Soffits:
  - 1. One coat of primer sealer latex or alkyd.
  - 2. Two coats of latex or alkyd, flat.
- H. Structural Steelwork: Refer to individual specification sections of Division 5.
- I. Architectural Steel - Unprimed:
  - 1. One coat of latex or alkyd primer.
  - 2. Two coats of alkyd or latex enamel, gloss or semi-gloss.
- J. Architectural Steel - Shop Primed:
  - 1. Touch-up with zinc chromate or zinc rich primer.
  - 2. Two coats of alkyd or latex enamel, gloss or semi-gloss.
- K. Architectural Steel - Galvanized:
  - 1. One coat galvanized primer.

- 2. One mordant coat.
  - 3. Two coats of alkyd or latex enamel, gloss or semi-gloss.
- L. Aluminum - Mill Finish:
  - 1. One coat etching primer.
  - 2. Two coats of alkyd enamel, gloss.
- M. Copper:
  - 1. One coat etching primer.
  - 2. Two coats of alkyd enamel, gloss.

### 3.10 SCHEDULES - INTERIOR SURFACES

- A. Wood - Painted:
  - 1. One coat of latex or alkyd prime sealer.
  - 2. Two coats of alkyd or latex enamel, gloss, semi-gloss, eggshell or flat.
- B. Wood - Intumescent Coating:
  - 1. One coat of prime sealer.
  - 2. Two coats of intumescent coating.
- C. Wood - Transparent:
  - 1. Filler coat (for open grained wood only).
  - 2. Two coats of stain.
  - 3. One coat sealer.
  - 4. Two coats of varnish, gloss, satin or flat.
- D. Cabinet Interior:
  - 1. One coat of latex or alkyd prime sealer.
  - 2. One coat of alkyd or latex enamel, semi-gloss or flat.
- E. Glue-Laminated Wood and Wood Timber Members:
  - 1. One coat of stain or sealer.
  - 2. Two coats of varnish, gloss, satin or flat.
- F. Concrete, Concrete Block, Restored Masonry and Cement Plaster:
  - 1. One coat of primer sealer latex or alkyd.
  - 2. Two coats of latex or alkyd, flat or semi-gloss.
- G. Structural Steelwork: Refer to individual specification sections of Division 5.
- H. Architectural Steel - Unprimed:
  - 1. One coat of alkyd or latex primer.
  - 2. Two coats of alkyd or latex enamel, gloss or semi-gloss.
- I. Architectural Steel - Primed:
  - 1. Touch-up with alkyd or latex primer.
  - 2. Two coats of alkyd or latex enamel, gloss or semi-gloss.
- J. Architectural Steel - Galvanized:
  - 1. One coat galvanized primer.

- 2. One mordant coat.
  - 3. Two coats of alkyd or latex enamel, gloss or semi-gloss.
- K. Aluminum - Mill Finish:
  - 1. One coat etching primer.
  - 2. Two coats of alkyd enamel, gloss.
- L. Concrete Floors:
  - 1. One coat of alkali resistant or catalyzed epoxy primer.
  - 2. Two coats of alkyd floor enamel or catalyzed epoxy enamel, gloss.
- M. Gypsum Board and Plaster Walls:
  - 1. One coat of alkyd primer sealer.
  - 2. Two coats of alkyd, latex or latex acrylic enamel, gloss, semi-gloss, eggshell or flat.
- N. Gypsum Board and Plaster Ceilings:
  - 1. One coat of alkyd primer sealer.
  - 2. Two coats of alkyd, latex or latex acrylic enamel.
- O. Wall Surfaces Under Vinyl Wall Covering:
  - 1. Two coats of alkyd primer sealer.
- P. Fire Retardant Finish:
  - 1. One coat of fire retardant primer.
  - 2. Two coats of fire retardant finish, gloss.
  - 3. Flame and smoke rating of 25/50.
- Q. Insulated Coverings - Canvas and Cotton:
  - 1. One coat of alkyd primer sealer.
  - 2. Two coats of alkyd enamel, gloss, semi-gloss, eggshell or flat.

### 3.11 SCHEDULES - COLORS

- A. As indicated on drawings and/or as selected by the Engineer from manufacturer's range and samples.

END OF SECTION