

SECTION 074113 – STANDING SEAM METAL ROOF

1.00 GENERAL Division 01 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Standing seam metal roofing systems, including:
1. Standing seam metal roofing.
 2. Installation accessories.

1.02 QUALITY ASSURANCE

- A. Field sections allow: Where possible prior to fabrication of panels, take field measurements of structure or substrates to receive panel units. Allow for trimming of panel units where field dimensions cannot be established prior to fabrication.
1. Coordinate field measurements and shop drawings with fabrication and shop assembly to minimize field adjustments, splicing, and mechanical joints.
- B. Weld Joints: Provide preformed metal roof panel systems which have been tested and listed by UL for the following rating:
1. Class 90 minimum.
 2. Or as specified in Structural Drawings

1.03 WARRANTY

- A. Manufacturer's Warranty: Provide manufacturer's standard warrant document executed by authorized company official covering finish, including color, fade, chalking and film integrity.
- B. Warranty Period: 20 years commencing on date of Substantial Completion.

2.00 PRODUCTS

A. Galvanized Steel Sheet: ASTM A653, with minimum G90 zinc coating.

2.01 MATERIALS

A. Galvanized Steel Sheet: ASTM A653, with minimum G90 zinc coating.

2.02 ROOF SYSTEM

- A. Manufacturer:
1. Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
 - a. McGroy Metal, Atlanta/GA (800) 950-6538
 - b. Petersen Aluminum, Elk Grove Village, (800) 323-1960

B. System Type: Uninsulated system consisting of roof panels with concealed attachment clips in panel; clips secured directly to rigid substrate. Refer to Drawings for acceptable types.

1. Seam Type: Factory-formed for self-interlocking without field crimping.
2. Fabricate panels from galvanized steel sheet, minimum 24 gage (0.028 inch thick).
3. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.
4. Interior (underside) finish: Mill finish, .04 mil.
5. Panel width: 18 inches, center to center.
6. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.
7. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

8. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.
9. Interior (underside) finish: Mill finish, .04 mil.
10. Panel width: 18 inches, center to center.
11. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.
12. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

13. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

14. Interior (underside) finish: Mill finish, .04 mil.
15. Panel width: 18 inches, center to center.
16. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.
17. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

18. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

19. Interior (underside) finish: Mill finish, .04 mil.

20. Panel width: 18 inches, center to center.

21. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.

22. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

23. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

24. Interior (underside) finish: Mill finish, .04 mil.

25. Panel width: 18 inches, center to center.

26. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.

27. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

28. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

29. Interior (underside) finish: Mill finish, .04 mil.

30. Panel width: 18 inches, center to center.

31. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.

32. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

33. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

34. Interior (underside) finish: Mill finish, .04 mil.

35. Panel width: 18 inches, center to center.

36. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.

37. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

38. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

39. Interior (underside) finish: Mill finish, .04 mil.

40. Panel width: 18 inches, center to center.

41. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.

42. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

43. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

44. Interior (underside) finish: Mill finish, .04 mil.

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46. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.

47. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

48. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

49. Interior (underside) finish: Mill finish, .04 mil.

50. Panel width: 18 inches, center to center.

51. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.

52. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

53. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

54. Interior (underside) finish: Mill finish, .04 mil.

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59. Interior (underside) finish: Mill finish, .04 mil.

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64. Interior (underside) finish: Mill finish, .04 mil.

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74. Interior (underside) finish: Mill finish, .04 mil.

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77. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

78. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

79. Interior (underside) finish: Mill finish, .04 mil.

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82. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

83. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

84. Interior (underside) finish: Mill finish, .04 mil.

85. Panel width: 18 inches, center to center.

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87. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

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94. Interior (underside) finish: Mill finish, .04 mil.

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99. Interior (underside) finish: Mill finish, .04 mil.

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101. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.

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104. Interior (underside) finish: Mill finish, .04 mil.

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109. Interior (underside) finish: Mill finish, .04 mil.

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117. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

118. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

119. Interior (underside) finish: Mill finish, .04 mil.

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123. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

124. Interior (underside) finish: Mill finish, .04 mil.

125. Panel width: 18 inches, center to center.

126. Panel profile: Flat face (without ribs), 1/4 inch-high standing seams.

127. Underlayment: Unperforated asphalt-saturated felt meeting the requirements of ASTM D226, Type II.

128. Exterior finish: Fluoropolymer, 70 percent Kynar 500, 1 mil dry film thickness.

129. Interior (underside) finish: Mill finish, .04 mil.

C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

1.08 COORDINATION

- A. Coordinate the work with the installation of associated metal flashings, as the work of this section proceeds.
- B. Warranty: Cover damage to building resulting from failure to prevent penetration of water.

1.09 WARRANTY

- A. Provide fifteen (15) year warranty under provisions of Section 017700, 2 years labor.
- B. Warranty: Cover damage to building resulting from failure to prevent penetration of water.

2.00 PRODUCTS

A. MANUFACTURERS – MEMBRANE MATERIAL

Duro-Last (PVC Thermoplastic Roofing, Fabric reinforced). Thickness shall be 50 mil nominal thick with a low shrink, wet, inserted 18x14, 1000/tenor polyester scrim. Color selection: ASTM D4354 white.

B. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

C. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

D. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

E. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

F. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

G. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

H. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

I. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

J. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

K. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

L. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

M. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

N. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

O. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

P. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

Q. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

R. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

S. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

T. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

U. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

V. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

W. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

X. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

Y. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

Z. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AA. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AB. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AC. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AD. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AE. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AF. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

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AI. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AJ. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AK. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AL. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AM. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AN. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AO. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AP. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AQ. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AR. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AS. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AT. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AU. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AV. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AW. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AX. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AY. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

AZ. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

BA. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

BB. Corlate Syntec, PO Box 7000, Corlate, PA 17013 (717) 245-7000; (800) 4 SYNTec

BC. Corlate Syntec, PO Box 7000,

SECTION 084113 – ALUMINUM FRAMED ENTRANCES AND DOOR FRAMES

1.00 GENERAL Division 01 requirements apply to this Section.

- 1.01 SUMMARY
- A. Section Includes: Aluminum entrances and storefront, including:1. Aluminum entrance doors and door frames.
 - 2. Aluminum framing system.

- 1.03 PERFORMANCE REQUIREMENTS
- A. Exterior Assemblies: Design and fabricate to comply with the performance characteristics listed below.
 - B. Thermal Movement: Allow for expansion and contraction resulting from ambient temperature range of 120 degrees F (49 degrees C).
 - C. Wind Loading: Provide capacity to withstand the following loadings without deformation and without deflection greater than 1/75 of span:1. Uniform pressure of 20 psf inward.
 - 2. Uniform pressure of 20 psf outward.
 - D. Air Leakage:1. Field Framing: Not more than 0.06 cfm per square foot of fixed area.
 - a. Measuring at 6.24 psf.
 - E. Water Leakage:1. Field Framing (excluding operable door edges): No penetration at 8 psf.
 - 2. Thermal Transmittance:1. Field framing: Not more than 0.65.
 - 2. Door frames: Not more than 0.83.

- 1.05 QUALITY ASSURANCE
- A. Standard for Wind Load Testing: ASTM E530.
 - B. Standard for Air Leakage Testing: ASTM E283; report result as cubic feet per minute per unit of measurement indicated, at pressure differential indicated.
 - C. Standard for Water Leakage Testing: ASTM E331; report result at pressure differential indicated.
 - D. Standard for Thermal Transmittance Testing: ASTM 1503.1; report result as U-value (Btu per hour per square foot per degree F).
- 1.06 PROJECT CONDITIONS
- A. Take field measurements prior to fabrication.
 - B. Furnish coordination data, consisting of installation templates, diagrams, wiring diagrams, and other data, to fabricators and installers of related work where necessary for coordination with the installation of this work.

- 1.07 WARRANTY
- A. General: This warranty shall be in addition to, and not a limitation of, other rights the Owner may have against the Contractor under the Contract Documents.
 - B. Fabricated Products: Provide written warranty agreeing to replace work which fails in materials or workmanship within 5 years from date of Substantial Completion.
 - 1. Failure includes excessive leakage or air infiltration, excessive deflections, faulty operation, and deterioration of finish or construction in excess of normal wear/tear.
 - 2. Material to be signed by Installer and Contractor.
 - C. Equipment: Provide manufacturer's warranty agreeing to replace work which fails within 5 years of the date of Substantial Completion.

2.00 PRODUCTS

- A. Aluminum Framing Systems:
- 1. Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:1. Kiewit Company, Inc.
 - 2. United States Aluminum Corporation.
- C. Aluminum Frame Systems:
- 1. Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:1. Kiewit Company, Inc.
 - 2. United States Aluminum Corporation.
- D. Aluminum Frame Systems:
- 1. Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:1. Kiewit Company, Inc.
 - 2. United States Aluminum Corporation.

2.02 FRAMING SYSTEMS

- A. Aluminum Frame System: Extruded aluminum, shop-fabricated and preassembled where possible.
- 1. Style: 2 inch x 4-1/2 inch center glazing system.
 - 2. Products which have minor differences will be accepted when, in the Architect's judgment, such differences do not detract from design concept or intended performance.
 - 3. Glazing method: Resilient gasket glazing, with provision for replacement of glazing without disassembly of framing.
 - 4. Finish:1. Finish exposed surfaces of aluminum in accordance with AA M12 C22 A42, Architectural Class I integral color coating having 0.0007" coating thickness, 32 mg/sq.in. coating weight, and 2.55 g/ft² apparent density as minimum, followed by a complete seal in accordance with ASTM B136. Color: White or Red per drawings.

B. Aluminum Door Frame: Tubular and channel frame assemblies, with either welded or mechanical joints, reinforced as necessary to support required loads.

1. Finish:1. Finish exposed surfaces of aluminum in accordance with AA M12 C22 A42, Architectural Class I integral color coating having 0.0007" coating thickness, 32 mg/sq.in. coating weight, and 2.55 g/ft² apparent density as minimum, followed by a complete seal in accordance with ASTM B136. Color: White or Red per drawings.

2.03 SWINGING DOORS

- A. Site and Roll Doors: Glazed doors with extruded aluminum tubular frame members.
- 1. Fabricate with mechanical joints using heavy inserted reinforcing plates and concealed tie rods or J-bolts, or with structurally welded joints.
 - 2. Thickness: 1-3/4 inches nominal.
 - 3. Site width: 5-1/2 inches nominal. 10 inches bottom rail.
 - 4. See drawings for design.
 - 5. Glazing stops: Shop-on extruded aluminum, designed to allow replacement of glazing without disassembly of frame. Provide nonremovable exterior stops.
 - 6. Finish:1. Finish exposed surfaces of aluminum in accordance with AA M12 C22 A42, Architectural Class I integral color coating having 0.0007" coating thickness, 32 mg/sq.in. coating weight, and 2.55 g/ft² apparent density as minimum, followed by a complete seal in accordance with ASTM B136. Color: White or Red per drawings.
- B. Weatherstripping:
- 1. At EDGM: Compress on pins, replaceable molded gaskets of neoprene or EPDM conforming with ASTM D 564 or of PVC conforming with ASTM D2237.
 - 2. At other edges: Sliding woven pile strip of wool, polypropylene, or nylon, with nylon fabric or aluminum strip backing, conforming with AAMA 701.2.
 - 3. In bottom door rail: Adjustable molded blade gasket of EPDM or vinyl, continuously contacted threshold.
 - 4. Provide weatherstripping on all exterior doors.
 - C. Hardware for Aluminum Doors: Provide all hardware as required for proper operation.

2.04 MATERIALS – GENERAL

- A. Aluminum Members: Alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish; ASTM B221 for extrusions, ASTM B209 for sheet/plate.
- B. Fasteners: Aluminum, nonmagnetic stainless steel, or other materials warranted by manufacturer to be noncorrosive and compatible with aluminum components.
 - 1. Do not use exposed fasteners.
 - C. Concealed Fasteners: Deep-set stainless steel, 26 gage minimum; or extruded aluminum, 0.032 inch minimum; or on alloy and type selected by manufacturer for compatibility with other components.
 - D. Brackets and Reinforcements: High-strength aluminum frame feasible; otherwise, nonmagnetic stainless steel or hot-dip galvanized steel complying with ASTM A123.
 - E. Dissimilar Metal Coating: Cold-applied asphalt mastic, zinc chromate paint, or other nonconductive, nonabrasive material.
 - F. Gasket Gaskets: Comply with ASTM C584, style as recommended by manufacturer.
 - G. Glass and Glazing Accessories: Provide products specified elsewhere in Division 08.
- 2.05 FABRICATION
- A. Any dimensions which may vary are indicated on drawings, with maximum and minimum dimensions required to achieve design requirements and coordination with other work.
 - B. Fabrication: To greatest extent possible, complete fabrication, assembly, and finishing before shipment to project site. Disassemble components only as necessary for shipment and installation.
 - 1. Maintain accurate relation of planes and angles, with latitude fit of contacting members.
 - 2. Prepare doors to greatest extent possible, in coordination with installation and hardware requirements.
 - 3. Factory-install all hardware except surface-mounted items.
 - 4. Perform edge finishing operations, including cutting, fitting, forming, drilling, and grinding of metal work, in manner which prevents damage to exposed finish surfaces.
 - C. Welding: Comply with AWS recommendations to avoid discoloration; grind exposed welds smooth and remove mechanical finish.
 - D. Reinforcing: Install reinforcing as required for hardware and as necessary for performance requirements and resistance, and rigidly, separate dissimilar metals as specified under "Installation."

3.00 EXECUTION

- 1.01 PREPARATION
- A. Verify and coordinate installation tolerances.
- 3.02 INSTALLATION
- A. Comply with manufacturer's instructions and recommendations for installation of components.
 - B. Set units plumb, level, and true to line, without warp or rock. Provide proper support and anchor securely in place.
 - C. Separate aluminum exposed to weather from dissimilar metals; coat dissimilar metals that are in drainage cavities using one of the materials specified: Aluminum, stainless steel, zinc, cadmium, and small areas of white bronze are not considered dissimilar from each other.
 - D. Coat all metals that come into contact with masonry, concrete, and treated wood, using one of the materials specified.
 - E. Install joint sealers between exterior and interior members and the surface below as indicated, to provide weathertight construction. Comply with requirements of Division 07 for installation of joint sealers.
 - F. Install glass as specified elsewhere in Division 08.
- 3.03 ADJUSTMENT
- A. Adjust operating hardware to function properly without binding, and to close doors tightly.

END OF SECTION

SECTION 087110 – DOOR HARDWARE

1.00 GENERAL Division 01 requirements apply to this Section.

- 1.01 SUMMARY
- A. Section Includes: All door hardware installation in the hardware schedule on the Drawings.
 - B. Installation refer to Section 087110 – Installation of Doors Hardware.

- 1.02 QUALITY ASSURANCE
- A. Manufacturer Qualifications: All equipment specified in this section will be provided by a single manufacturer with a minimum of ten (10) years experience in manufacturing door hardware.
 - B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.
- 1.03 Delivery, Storage, and Handling
- A. Store products in manufacturer's unopened packaging until ready for use.
 - B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

- 1.04 PROJECT CONDITIONS
- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by the manufacturer's Limited Warranty against Manufacturing Defects.
 - 1. Duration: Ten (10) years

1.05 WARRANTY

- A. At project closeout, provide to the Owner or Owner's representative an executed copy of the manufacturer's Limited Warranty against Manufacturing Defects.
- 1. Duration: Ten (10) years

2.00 PRODUCTS

1.01 GENERAL HARDWARE REQUIREMENTS

- A. In addition to requirements of the hardware groups shown on Drawings, comply with the following requirements.
 - B. Select style and features of each item to suit configuration and construction of door and frame and door operation indicated.
- 2.02 MATERIALS – GENERAL
- A. Manufacturers:
- 1. All hardware shall be of one type from the same manufacturer.
 - 2. Provide hardware manufactured to conform to published trademarks.
 - 3. Fasteners: Provide all fasteners required for secure installation.
 - 4. Select fasteners appropriate to substrate and material being fastened.
 - 5. Use machine screws unless otherwise indicated.
 - 6. Use Phillips Rethread screws unless otherwise indicated.
 - 7. Use fasteners impervious to corrosion outdoors and on exterior doors.
 - 8. Exposed screws: Match hardware finish.
 - 9. Do not use through-bolts where bolt head or nut on opposite face would be exposed in finished work, unless otherwise indicated.
 - a. Where bolt head or nut is exposed in finished work, provide the same finish as hardware on that side of the door.
 - b. Provide sleeves for through-bolts or use set screw fasteners.
 - c. Use through-bolts where it is not possible to reinforce substrate adequately.
 - D. Finishes: All hardware to have #26, satin chromium plated finish unless otherwise noted.
 - 1. Front door handles to match store front.
 - 2. See Drawings for specific door hardware requirements.

3.00 EXECUTION

- 1.01 PREPARATION
- A. Factory or shop prepare all work for installation of hardware.

3.02 INSTALLATION (Reference – refer to Section 087110 – Installation of Doors Hardware)

- A. Follow hardware manufacturer's instructions and recommendations.
- B. Install surface-mounted items after substrates have been completely finished; install recessed items and recessed portions of items before finishes are applied and provide suitable, effective protection.
- 1. When surface-mounted items are installed before final finish, remove, store, and reinstall, or apply suitable effective protection.
- C. Mount all heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
- 1. Exceptions: a. As required, comply with applicable regulations.
- 2. Set unit level, plumb, and true to line and location.
- D. Reinforce substrates as necessary for proper installation and operation.
- E. Set thresholds in full bed of sealant.

3.03 ADJUSTMENT

- A. Adjust each operating item of hardware and each door for proper operation and function; replace units which cannot be adjusted to operate freely and smoothly.
- B. Adjust door closer to compensate for operation of heating and ventilating systems.
- C. Wherever hardware installation is made more than one month prior to completion of occupancy of a space or area, re-adjust all hardware items in that area not more than one week prior to such completion or occupancy, restore to proper operation.

END OF SECTION

SECTION 087115 – INSTALLATION OF DOOR HARDWARE

1.00 GENERAL Division 01 requirements apply to this Section.

- 1.01 SUMMARY
- A. Section Includes: Installation of doors and hardware, including:1. This section specifies the hanging of doors and installation of hardware.
 - 2. Fitting and preparation for hardware of unfinished wood doors.
 - 3. Installation of lock cylinders in special doors.

1.03 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.
- 1. American National Standards Institute and Door and Hardware Institute (ANSI/DHI):1. Installation Guide for Doors and Hardware (1986)
- 2. National Fire Protection Association (NFPA):1. 800-80 Fire Doors and Windows

2.00 PRODUCTS

- 1.01 FASTENERS
- A. Use fasteners furnished with hardware to be installed.
 - 1. Where fasteners are not furnished with the item use fasteners of suitable size and type to harmonize with the item as to material and finish and to suit the material to which fastened.
 - 2. Use machine screws and metal expansion shields to secure hardware to concrete, ceramic or quarry tile, or solid masonry. Do not use fire, plastic, and lead plugs or adhesives.
 - 3. Do not use ferrous metal fastenings exposed to weather.

3.00 EXECUTION

- 1.01 INSTALLATION, GENERAL
- A. Hang doors and install hardware when concrete work, plastering, the setting, and other operations have been completed which increase humidity and dust in building.
 - B. Do not hang plastic faced wood doors in areas where materials are not sufficiently dry so as to affect the dimensional stability of the door.
 - C. Install hardware, except hinges, after field painting or sealing, specified in Section 09900 – Painting.
 - D. Center doors in the opening or frame with contact surfaces fit tight and even without forcing or wedging the components.
 - E. Replace doors and frames that do not conform to hardware weight requirements.

3.02 FITTING WOOD DOORS

- A. Do not alter pre-fit and prefinished doors.
- B. Unless otherwise detailed, fit hinged doors with 1/8-inch clearance at hinge stile, 1/8-inch at top and lock or meeting stile, and 3/4 inch between bottom rail and floor.
- C. Bevel lock edge and meeting stile of single acting wood doors 1/8-inch from each 2 inches of door thickness.
- D. Immediately after fitting and cutting of wood doors for hardware, seal edges of doors as specified in Section 099100 – Painting.
- E. Mortise wood doors for hardware using templates furnished under Section 087110 – Door Hardware.
- F. Cut shingles for lock fronts, strikes, hinges and similar items same size as item installed.

3.03 INSTALLING DOORS AND BUILDER'S HARDWARE

- A. Install hardware at the location (height) specified.
 - B. Install in accordance with the manufacturer's printed instructions and ANSI/DHI Installation Guide for Doors and Hardware unless specified otherwise.
 - C. Drill and tap screw holes in steel frames and doors for surface mounted hardware.
 - D. Use shims only at hinges where required to provide uniform clearance and alignment of door. Cut shims from stainless steel plate to same size as hinge.
 - E. Do not drive screws in place.
 - F. Carefully fit and securely attach hardware items to doors and frames.
 - G. Supply and install piano hinge to rear service door, per plans.
- 3.04 INSTALLING FIRE RATED DOORS. (Verify if required)
- A. Install fire rated doors in accordance with NFPA 80.
 - B. Do not remove qualified testing and inspection agency label.

3.05 INSTALLING WEATHERSTRIPPING AND SEALS

- A. Accurately cut and fit weatherstrips and seals. Carefully align for full contact and tight seal and secure firmly to maintain weathertight, waterproof, and light proof seal without preventing smooth and easy operation of doors.
- B. Provide suitable blocking where necessary to clear hardware, and make adjustments as required to meet special conditions encountered.
- C. Prime paint wood surfaces which have been cut with wood water before weatherstrips are installed.
- D. Set thresholds in sealant as specified in Section 079200 – Joint Sealants.
- E. Install seals on door frames for light proof doors. Secure seals to door frames at jamb and heads with contact adhesive to prevent infiltration of light.

END OF SECTION

SECTION 088000 – GLAZING

3.00 EXECUTION Division 01 requirements apply to this section.

- 1.01 EXAMINATION
- A. Verify prepared openings under provisions of drawings.
 - B. Verify that openings for glazing are correctly sized and within tolerance.

- C. Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.02 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.

3.03 PREFORMED GLAZING

- A. Cut glazing spline to length; install on glazing pane. Seal corners by butting spline and sealing junctions with butyl sealant.
- B. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
- C. Seal glazing on setting blocks and push against fixed stop with sufficient pressure to obtain full contact.
- D. Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.
- E. Trim protruding tape edge.

3.04 INTERIOR – TAPE AND SEALANT

- A. Cut glazing tape to length and install against permanent stops, projecting 1/16 inch above sight line.
- B. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
- C. Seal glazing on setting blocks and push against tape to ensure full contact at perimeter of pane or unit.
- D. Install removable stops, with spacer shims inserted between glazing and applied stops at 24 inch intervals, 1/4 inch below sight line.
- E. Fill gaps between pane and applied stop to substrate to depth equal to bite on glazing, to uniform and level line.
- F. Trim protruding tape edge.

END OF SECTION

DIVISION 09 – FINISHES

SECTION 092713 – FIBER REINFORCED PANELS

1.00 GENERAL Division 1 requirements apply to this Section.

- 1.01 SUMMARY
- A. Section Includes: Pre-finished polyester glass reinforced panels (FRP) and accessories.

- 1.02 QUALITY ASSURANCE
- A. All panels shall have a Class I flame spread classification Index of less than 25.
 - B. All panels shall be moisture resistant, and shall not rust or corrode.

2.00 PRODUCTS

- 1.01 PANELS
- A. Fiber reinforced panels shall be as indicated and scheduled on the Drawings. Provide all trim and accessories as required for a complete installation as indicated and specified herein. Sheets are 4' wide x 10' high.

2.02 MOLDINGS

- A. PVC: Extruded PVC Trim Profiles for 090 inch outside panels as provided by manufacturer. Provide inside outside corners, and base moldings.

2.03 ACCESSORIES

- A. Fasteners: Non-staining nylon drive rivets
- 1. Match panel project conditions
- 2. Length to suit project conditions

- B. Adhesive: FRP Adhesive – Water-resistant, non-flammable adhesive as provided by manufacturer.
- C. Sealant:1. Color Match Sealant, provided by manufacturer.

3.00 EXECUTION

- 3.01 PREPARATION
- A. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails, dust, dirt, and joints and cracks filled flush and smooth with the adjoining surface.
 - 1. Verify that stud spacing does not exceed 24 inches (61cm) on-center.

- B. Repair defects prior to installation.
- 1. Level wall surfaces to panel manufacturer's requirements. Remove protrusions and fill indentations.

3.02 INSTALLATION

- A. Comply with manufacturer's recommended procedures and installation sequence.

- B. Out sheals to meet supports allowing 1/8" inch (3mm) clearance for every 8 foot (2.4m) of panel.
- 1. Cut and drill with carbide tipped saw blades or drill bits, or cut with shears.
- 2. Space at in field 16 inches (40.64cm) on center, with fasteners spaced at 12" (30.48cm) maximum on center.

- C. Apply panels to board substrate, above board, vertically oriented with seams plumb and pattern aligned with adjoining panels.
- 1. Install panels with manufacturer's recommended gap for panel and corner joints.
- a. Adhesive trowel and application method to conform to adhesive manufacturer's recommendations.
- b. Drive fasteners for snug fit. Do not over-tighten.

- D. Apply panel molding to all panel edges using silicone sealant providing for required clearance.
- 1. All moldings must provide for a minimum 1/8" (1.58mm) of panel expansion at joints and edges, to insure proper installation.

- 2. Apply sealant to all moldings, channels, and joints between the system and different materials to assure weathertight installation.

4.02 DELIVERY, STORAGE, AND HANDLING

- A. All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements.

PART 2 – PRODUCTS

- 2.01 WALL SHEATHING
- A. Cementitious Fiber–Mat Reinforced Sheathing: ASTM C 1325, ANSI A118.9, cementitious board.
 - 1. Product: Subject to compliance with requirements, provide DUROCK Brand Cement Board by United States Gypsum Company.
 - 2. Type and thickness: [5/8 inch] thick.
 - 3. Size: [48 by 96 inches]

2.02 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and application.
- B. Wood Screws: DUROCK Brand Wood or USG Sheathing WF screws [1–5/8 inch] with corrosion-resistant coating.
- C. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: DUROCK Brand Steel or USG Sheathing SF steel drill screws [1–5/8 inch] with corrosion-resistant coating.
- 1. For steel framing less than 0.0329 inch thick, attach sheathing to comply with ASTM C 954.

2.03 ACCESSORIES

- A. Fasteners: Non-staining nylon drive rivets
- 1. Match panel project conditions
- 2. Length to suit project conditions

- B. Adhesive: FRP Adhesive – Water-resistant, non-flammable adhesive as provided by manufacturer.
- C. Sealant:1. Color Match Sealant, provided by manufacturer.

3.00 EXECUTION

- 3.01 INSTALLATION, GENERAL
- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint alignment.
 - B. Cut panels at penetrations, edges, and other obstructions of work. Cut lightly against abruting construction, unless otherwise indicated.

3.03 GYPSUM SHEATHING INSTALLATION

- A. Comply with ASTM C 1280, GA-253 and manufacturer's written instructions.
- 1. Fasten sheathing to wood framing with [screws].
- 2. Fasten sheathing to cold-formed metal framing with screws.
- 3. Install boards with a 3/8-inch gap where non-load-bearing construction abuts structural elements.

- B. Repair defects prior to installation.
- 1. Level wall surfaces to panel manufacturer's requirements. Remove protrusions and fill indentations.

3.02 INSTALLATION

- A. Comply with manufacturer's recommended procedures and installation sequence.

- B. Out sheals to meet supports allowing 1/8" inch (3mm) clearance for every 8 foot (2.4m) of panel.
- 1. Cut and drill with carbide tipped saw blades or drill bits, or cut with shears.
- 2. Space at in field 16 inches (40.64cm) on center, with fasteners spaced at 12" (30.48cm) maximum on center.

- C. Apply panels to board substrate, above board, vertically oriented with seams plumb and pattern aligned with adjoining panels.
- 1. Install panels with manufacturer's recommended gap for panel and corner joints.
- a. Adhesive trowel and application method to conform to adhesive manufacturer's recommendations.
- b. Drive fasteners for snug fit. Do not over-tighten.

- D. Apply panel molding to all panel edges using silicone sealant providing for required clearance.
- 1. All moldings must provide for a minimum 1/8" (1.58mm) of panel expansion at joints and edges, to insure proper installation.

- 2. Apply sealant to all moldings, channels, and joints between the system and different materials to assure weathertight installation.

END OF SECTION

SECTION 093013 – CERAMIC TILE WALL FINISH

1.00 GENERAL Division 01 requirements apply to this Section.

- 1.01 SUMMARY
- A. Section Includes: Ceramic tile wall finish, including:1. Ceramic tile walls and wall panels, "Egan White" by USG Interiors.
 - 2. Cementitious backing board.

- 1.02 QUALITY ASSURANCE
- A. Conform to ANSI/TCA A137.1.
 - B. Conform to TCA Handbook for Ceramic Tile Installation.

1.03 ENVIRONMENTAL REQUIREMENTS

- A. Maintain 50 degrees F (10 degrees C) during installation of mortar materials.

2.00 PRODUCTS

- 1.01 TILE MATERIAL
- A. Ceramic Wall Tile: ANSI/TCA A137.1, types as indicated on Drawings. See Sheet A6.
 - B. Base: Match floor tile where required.

2.02 MORTAR MATERIALS

- A. Mortar Materials: ANSI/TCA A118.4; Portland cement, sand, latex additive, and water.

2.03 GROUT MATERIALS

- A. Grout: Cementitious type with latex additive.

2.04 ACCESSORIES

- A. Backing Board: High density, cementitious, glass fiber reinforced, 1/2 inch thick; 2 inch wide coated glass fiber tape for joints and corners.

2.05 MORTAR MIX AND GROUT MIX

- A. Mix and proportion cementitious materials for site made mortar bed and bond coat.

3.00 EXECUTION

- 3.01 EXAMINATION
- A. Verify that surfaces are ready to receive work.
 - B. Beginning of installation means installer accepts condition of existing substrate.

3.02 PREPARATION

- A. Protect surrounding work from damage or disfiguration.
- B. Vacuum clean existing substrate and damp clean.
- C. Crust substrate surface free of laitance. Level existing substrate surfaces to acceptable tolerances.
- D. Apply sealer to surfaces as recommended by adhesive manufacturer.

3.03 INSTALLATION – THINSET METHOD

- A. Install mortar, tile, and grout to TCA Handbook for Ceramic Tile Installation, Handbook Number W24.
- B. Install backing board over studs in accordance with manufacturer's instructions. Tape joints and corners; cover with alkali coat of dry-set mortar to a feather edge.
- C. Lay tile in pattern indicated on Drawings. Do not interrupt the pattern around openings.
- D. Cut and fit the tile to penetrations through tile. Form corners and bases neatly. Align wall, base, and joint points.
- E. Place the joints uniform in width, subject to variance in tolerance allowed in the size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- F. Form internal angles square cove and external angles bullnose.
- G. Sound the after setting. Replace hollow sounding tiles.
- H. Keep expansion control joints free of mortar or grout. Apply sealant to joints.
- I. Allow tile to set for a minimum of 48 hours prior to grouting.
- J. Grout the joints.
- K. Apply sealant to junction of tile and dissimilar materials and at junction of dissimilar planes.

END OF SECTION

SECTION 093014 – CERAMIC TILE FLOOR FINISH

1.00 GENERAL Division 01 requirements apply to this Section.

- 1.01 SUMMARY
- A. Section Includes: Tile floor finish, including:1. Power the floor and base finish using the thinset application method.

- 1.02 QUALITY ASSURANCE
- A. Conform to ANSI/TCA A137.1.
 - B. Conform to TCA Handbook for Ceramic Tile Installation.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Do not install adhesives in a closed, unventilated environment.
- B. Maintain 50 degrees F during installation of mortar materials.

2.00 PRODUCTS

- 2.01 TILE MATERIALS
- A. Power Tile: ANSI/TCA A137.1, types as indicated on Drawings. See sheet A6.
 - B. Base: Match power tile as indicated on Drawings.

2.02 MORTAR MATERIALS

SECTION 09100 — PAINTING

1.00 GENERAL Division 01 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes:
- Painting, including:
 - 1. Painting and finishing of exposed exterior items and surfaces
 - 2. Painting and finishing of exposed interior items and surfaces
 - 3. Field painting of exposed bare electrical items
 - 4. Field painting of exposed bare mechanical items.

1.02 QUALITY ASSURANCE

- A. Single Source Responsibility:
- 1. All materials required by this section shall be provided by a single manufacturer, unless otherwise required or approved.
- B. Applicator: Firm with successful experience in painting work similar in scope to work of this project.
- 1. Maintain throughout duration of the work a crew of painters who are fully qualified to satisfy requirements of the Specifications.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to project site in original, new, unopened packages and containers bearing the manufacturer's name and label and the following information:
- 1. Name or title of material
 - 2. Manufacturer's stock number and date of manufacture
 - 3. Manufacturer's name
 - 4. Contents by volume for major pigment and vehicle constituents
 - 5. Thinning instructions
 - 6. Application instructions
 - 7. Color name and number
- B. Store materials in tightly covered containers.
- 1. Maintain containers in a clean condition, free of foreign materials and residue
 - 2. Store materials at ambient temperature of between 45° minimum and 90° maximum, in a well-ventilated area
 - 3. Ensure that storage area is neat and orderly. Remove oily rags and waste daily.
- C. Take precautionary measures to prevent fire and health hazards.

1.04 PROJECT CONDITIONS

- A. Environmental Requirements:
- 1. Apply water-based coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50° and 90°
 - 2. Apply solvent thinned coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 45° and 95°
 - 3. Do not apply coatings in snow, rain, fog, or mist or when relative humidity exceeds 85% or to damp, dew laden or wet surfaces
 - 4. Application may be continued during inclement weather if areas and surfaces to be coated are enclosed and heated to temperatures within manufacturer's specified limits during application and drying periods
 - 4. Provide lighting level of at least 80 foot candles measured mid-height at substrate surface
 - 5. Provide continuous ventilation and heating to prevent accumulation of hazardous fumes and to maintain surface and ambient temperatures above 45° for 24 hours before, during and for 48 hours after application of finishes.

1.05 COORDINATION

- A. General: Perform work in proper sequence with work of other trades to avoid damage to finished work
- B. Primers: Provide finish coats which are compatible with prime coats used. Review other sections of these specifications in which prime coats are to be provided, to ensure compatibility of total coatings system for various substrates.
- 1. Upon request, furnish information to other trades on characteristics of finish materials proposed for use
 - 2. Provide barrier coats over incompatible primers, or remove and reprime as needed
 - 3. Notify the Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

2.00 PRODUCTS

2.01 MANUFACTURERS

- A. Products listed in the schedule on sheet A6 and in this section are specified by manufacturer's name and product number.
- B. Products of the following manufacturer comply with requirements of the contract documents:
- Glidden Paints

2.02 PRODUCTS

- A. Colors
- 1. For multicoat systems, apply each coat using a successively darker tint or shade, unless approved otherwise
 - 2. Top coat colors: As shown on Drawings and schedules.
- B. Color Pigments:
- 1. Lead Content: Not more than 0.06% lead, based on total nonvolatile (dry-film) weight
 - 2. This limitation is extended to all surfaces readily accessible to children under 7 years of age.
- C. Semi-Transparent Oil Stain.
- 1. National Insect of vehicle.

3.00 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and conditions are ready for work as instructed by the product manufacturer
- B. Examine surfaces scheduled to be finished, prior to commencement of work.
- 1. Report any unsatisfactory conditions in writing to the Contractor
 - 2. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the applicator
 - 3. Starting of painting work in any particular area will be construed as acceptance of surfaces and conditions within that area.
 - 4. Do not point over any code-required labels, equipment identification, or performance rating, name, or nomenclature plates.

3.02 SURFACE PREPARATION

- A. General: Prepare and clean each substrate condition in accordance with manufacturer's instructions and as herein specified.
- 1. Provide barrier coats or remove and reprime incompatible primers as required
 - 2. Remove electrical plates, hardware, light fixture trim, and fittings prior to preparing or finishing surfaces.
 - 3. Reinstall removed items following the completion of painting of each space or area.
- C. Clean surfaces before applying surface treatment.
- a. Remove oil and grease prior to mechanical cleaning
 - b. Coordinate cleaning and painting to ensure that no cleaning contaminants will fall onto newly coated areas.
- B. Cementitious Materials:
- 1. Prepare cementitious surfaces to be coated by removing efflorescence, chalk, dirt, dirt, grease, and oils, and by roughening as required to remove glaze.
 - 2. Determine alkalinity and moisture content of surfaces to be coated by performing appropriate tests.
 - 3. Do not apply coatings over surfaces where test results exceed results permitted in manufacturer's printed directions.
- C. Wood:
- 1. Clean wood surfaces to be coated with scrapers, mineral spirits, and sandpaper, as required
 - 2. Sand smooth those finished surfaces exposed to view, and dust off.
 - 3. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer before application of priming coat.
 - 4. After priming, fill holes and imperfections in finish surfaces with putty, plastic wood-filler, or exterior caulking compound as applicable.
 - a. Sand smooth when dried.
- D. Ferrous Metals:
- 1. Clean ferrous surfaces which are not galvanized or shop coated, removing oil, grease, dirt, loose mill scale, or other foreign substances by means of solvents, wire brushing, hand or power tool cleaning, or sandblasting to achieve degree of preparation recommended by coating manufacturer, except where specific and more stringent requirements are contained in the Contract Documents.
- E. Galvanized Surfaces:
- 1. Clean galvanized surfaces to remove oil and surface contaminants, using non-petroleum-based solvent.
 - 2. Apply coat of etching solution.
- F. Gypsum Board:
- 1. Latex-fill minor defects
 - 2. Spot-prime before repair.
- G. Milne:
- 1. Remove milne by scrubbing with solution of trisodium phosphate and bleach.
 - 2. Rinse with clean water and allow surface to dry.

3.03 MATERIALS PREPARATION

- A. Mix and prepare coating materials in accordance with manufacturer's directions.
- 1. Stir materials before application, to produce a mixture of uniform density, stir as required during application.
 - 2. Do not stir surface film into material.
 - 3. Remove film and, if necessary, strain material before using.
4. Maintain containers used in mixture and application of coatings in a clean condition, free of foreign materials and residue.

3.04 APPLICATION

- A. General:
- 1. Apply coatings in accordance with manufacturer's directions.
 - 2. Use applicators and techniques best suited for substrate and type of

material being applied.

- a. Surface imperfections will not be acceptable.
- b. Where items or surfaces are not specifically mentioned, coat the same as similar adjacent materials or areas.
- 1) If color or finish is not designated, the Architect will select these from standard colors or finishes available.
- c. Apply additional coats until dry film is of uniform finish, color, and appearance.
- 1) Ensure that all surfaces receive a dry film thickness equivalent to those of flat surfaces.
- d. Coat surfaces behind movable equipment and furniture the same as similar exposed surfaces
- e. Coat surfaces behind permanently fixed equipment or furniture with prime coat only, before final installation of equipment.
- f. Paint interior surfaces of ducts where visible through registers or grilles with a flat non-reflective black paint.
- g. Seal back edges of access panels and removable or hinged covers on metal exposed surfaces.
- h. Finish exterior doors on tops, bottoms, and side edges the same as exterior face unless otherwise indicated.
- B. Sand lightly before each succeeding enamel or varnish coat.
- C. Scheduling:
- 1. Apply first-coat material to prepared surfaces as soon as practicable and before surface deterioration
- 2. Apply successive coats within the time limits recommended by the manufacturer.

3.05 PRIME COATS

- A. General:
- 1. Apply prime coat on material which is required to be painted or finished, and which has not been prime coated by others.
 - 2. Omit bottom coat (primer) on metal surfaces which have been shop primed, unless otherwise indicated.
 - a. Touch up shop applied prime coats wherever damaged or bare.
 - b. Clean and touch up with same type shop primer.
- B. Primers for Wood and Wood Products:
- 1. Apply additional coats of no additional coat to the owner when necessary to deliver to project site.
 - 2. Prime all surfaces of interior wood, including edges, ends, faces, undersides, and back sides.

3.06 FINISH COATS

- A. Number of Coats and Minimum Coating Thickness:
- 1. Apply not less than the number of coats indicated.
 - 2. Apply materials at rate to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.
 - 3. Apply additional coats of no additional coat to the owner when necessary to achieve complete hiding, uniform texture, or uniform sheen and appearance.
 - 4. Apply block fillers using manufacturer's recommended application techniques and achieving a pin hole free surface.
- B. Completed Work:
- 1. Match approved samples for color, texture, and coverage.
 - 2. Remove, refinish, or repaint work as directed by the Architect when work is not in compliance with specified requirements.

3.07 CLEANING AND PROTECTION

- A. Cleaning:
- 1. During progress of work, remove from site discarded materials, rubbish, cans, and rags at end of each work day.
 - 2. Upon completion of painting work, clean window glass and other paint splattered surfaces.
 - a. Do not scratch or otherwise damage finished surfaces.
- B. Protection:
- 1. Protect work of other trades against damage by painting and finishing work.
 - a. Correct any damage as acceptable to the Owner or Owner's Project Manager.
 - 2. Provide "wet paint" signs as required to protect newly coated finishes.
 - 3. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
 - 4. At completion of work of other trades, touch up and restore all damaged or defaced coated surfaces.

3.08 SCHEDULE — INTERIOR SURFACES

- A. General: Paint systems listed in this schedule are based on GLIDDEN products unless otherwise noted. Products by other manufacturers may be substituted in accordance with Section 01200.
- B. Gypsum Wall Board:
- 1. Vinyl Acrylic Latex, eggshell.
 - a. Bottom Coat: Primer
 - b. Intermediate Coat: Vinyl Acrylic Latex
 - c. Top Coat: Vinyl Acrylic Latex
- C. Wood Trim:
- 1. Alkyd, Stain.
 - a. Bottom Coat: Primer
 - b. Intermediate Coat: Alkyd Stain
 - c. Top Coat: Alkyd Stain
- D. Ferrous Metal:
- a. Alkyd, Satin.
 - b. Intermediate Coat: Rust Inhibitive Paint,
 - c. Intermediate Coat: Alkyd Satin Finish
 - c. Top Coat: Alkyd Satin Finish
- E. Galvanized Metal:
- 1. Alkyd, Semi-gloss.
 - a. Bottom Coat: Galvanized Metal Latex Primer
 - b. Intermediate Coat: Alkyd Semi Gloss Finish
 - c. Top Coat: Alkyd Semi Gloss Finish.

3.09 SCHEDULE — EXTERIOR SURFACES

- A. General: Paint systems listed in this schedule are based on ICI Dulux products unless otherwise noted. Products by other manufacturers may be substituted in accordance with Section 01200.
- B. Stucco:
- 1. Latex, Flat.
 - a. Bottom Coat: Same As Top Coat.
 - b. Intermediate Coat: Same As Top Coat.
 - c. Top Coat: Flat Latex House Paint
- C. Ferrous Metal, Shop Primed:
- 1. Acrylic Latex, Semi Gloss.
 - a. Bottom Coats: Shop Primed.
 - b. Top 2 Coats: Acrylic Latex
- D. Galvanized Metal:
- 1. Acrylic Latex, Semi Gloss.
 - a. Bottom Coat: Latex Exterior Primer
 - b. Intermediate Coat: Acrylic Latex
 - c. Top coat: Acrylic Latex
- E. Concrete Masonry Units: Interiors of Trash Enclosure
- 1. Epoxy, Eggshell.
 - a. Bottom Coat: Block Filler
 - b. Intermediate Coat: Epoxy Enamel.
 - c. Top Coat: Epoxy Enamel
- F. Wood Trim:
- 1. Acrylic Latex, Semi Gloss.
 - a. Bottom Coat: Exterior Primer.
 - b. Intermediate Coat: Acrylic Latex
 - c. Top Coat: Acrylic Latex

END OF SECTION

SECTION 09910 — SPECIALTY PAINT

Part 1 GENERAL

1.1 Section Includes

- A. Interior wall and ceiling surface preparation and application of the mold, mildew and algae resistant, acrylic texture finishes in Lites's Commercial Texture System.

1.2 Related Sections

- A. Section 09250 — Gypsum Wallboard, including joint tape and compound to joints.
- B. Section 09900 — Painting

1.3 Quality Assurance

- A. Single Source Responsibility: Provide primers, (if required by the manufacturer or these specifications) and other surface preparation materials that are produced or specifically recommended by the same manufacturer as the finish materials to insure compatibility of the system. Use thinners approved by the coating manufacturer, and use only within recommended limits.
- B. Installer Qualifications: It is the responsibility of the biding entity to confirm that installers have either been certified by the manufacturer or manufacturer's representative in the installation of the specified finish, not less than one year of successful application of Lites's Commercial Texture System products, or that the installers have adequate experience with the installation of similar acrylic texture coatings.

Part 2 PRODUCTS

2.1 Manufacturers

- A. Manufacturer: Litex Finishing Systems, Inc. 5985 NW 31st. Ave., Fort Lauderdale, FL 33309. Toll Free 1-800-340-0341; Telephone 954-970-0361
- B. Manufacturer: Avail Ultra Tex 1255 Stoney Rd. Long, FL 33771; National Accounts Customer Service 888-615-8169 option 2

2.2 Materials

- A. General: Litex's Commercial Texture System is a line of 100% acrylic paint and texture products which, when layered in various combinations, creates "Classic" and "Designer" texture finishes exhibiting outstanding durability and

mold/mildew resistance.

2.3 Finish Selections

- A. "Classic" Finishes
- 1. CTS 200 —Commercial Texture FINE (light sand) applied over Mil-Ki Paint
- 2.4 Specifications
- A. Film Thickness Minimums: Final texture finish must be between 12 and 20 mil thick when dry and cured as per manufacturer's published recommendations.
- B. Cover Rates should comply with manufacturer's published recommendations based on surface preparations and applications.
- C. Color Selection: Custom color using Glidden Paints. See Sheet A6 for colors.
- D. Warranty: Litex Finishing System, Inc. provides a warranty for a minimum of five years for material integrity and against the growth of mold, mildew and algae as per the manufacturer's Warranty Statement.

Part 3 EXECUTION

3.1 Surface Preparation

- A. General: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
- B. Drywall (new): Tape, float, and finish to achieve industry standards for non-defective surface sufficient to be painted.

3.2 Material Preparation

- A. Stir materials before application per manufacturer's direction.
- B. Thinning: The Commercial Texture System comes pre-mixed wet and color ready in the container. Thinning, if required, should be done in accordance with manufacturer's recommendations. Should storage or shipping expose materials to excessively high or low temperatures, viscosity may be affected. See manufacturer's written instruction for thinning information.

3.3 Application

- A. General: Apply the Commercial Texture System materials in accordance with the manufacturer's instructions and recommendations as required in the specification. Wall manufacturer's recommendations. Should storage or shipping expose materials to excessively high or low temperatures, viscosity may be affected. See manufacturer's written instruction for thinning information.
- B. Clean-up: During the process of work, remove from site all discarded coating materials, rubbish, cans, and rags at the end of the day.
- C. Clean-up at completion of the work, remove all debris and leave area clean.

END OF SECTION

DIVISION 10 — SPECIALTIES

SECTION 102113 — PLASTIC LAMINATE TOILET COMPARTMENTS

1.00 GENERAL Division 01 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes:
- 1. Floor mounted plastic laminate toilet partitions.
 - 2. Urinal screens
 - 3. Attachment hardware.
- 1.03 REGULATORY REQUIREMENTS
- A. Conform to Americans With Disabilities Act, state and local codes for provisions for the physically handicapped.

1.04 FIELD MEASUREMENTS

- A. Verify in field all measurements prior to fabrication.

2.00 PRODUCTS

2.01 MANUFACTURERS

- A. American Sanitary Partition Corp. 1 inch Over Head Braced
- B. Plastic Laminate: See Sheet A6
- C. Color: See Sheet A6
- D. Substitutions: Under provisions of Section 01630 — 103 Submittals.
- E. Alternate: Capital Partitions by flovela HDPE 1" overhead braced.

2.02 MATERIALS

- A. Wood Particle Board Core: ANSI A208.1, 3 ply 45 pound density resin impregnated.
- B. Plastic Laminate: NEMA LD-3 General Purpose Type 0.05 inch thick.
- C. Adhesive: Contact type.

2.03 ACCESSORIES

- A. Plaster Sheet: ASTM A167, Type 304 stainless steel.
- B. Attachments, Screws, and Bolts: Stainless steel, theft proof type, heavy duty, anodized aluminum brackets.
- C. Through Bolts and Nuts: Stainless steel.

2.04 HARDWARE

- A. Hinges: Stainless steel pivot hinges, gravity type, adjustable for door close
- B. Locks and Keypers: Manufacturer's standard. Chrome plated cast metal.
- C. Coat Hook: Manufacturer's standard. Chrome plated cast metal.

2.05 FABRICATION

- A. Fabricate partitions by applying single sheet plastic laminate finish to faces and edges of core material using adhesive and pressure bonding. Seal edges of self-seals. Bevel corners and edges.
- B. Reinforce plaster and panels with steel plate reinforcement sandwiched within particle core at attachment points. Rafter cut openings as required.
- C. Thickness of Partition Panels and Doors: One inch.

2.06 FINISHES

- A. Plastic Laminate: See sheet A6
- B. Stainless Steel Surfaces: No. 304 satin.
- C. Exposed Steel Surfaces: Satin chrome plated.

3.00 EXECUTION

3.01 EXAMINATION

- A. Verify that openings are ready to receive work.
- B. Verify field measurements are as shown on drawings.
- C. Verify correct location of built-in framing, anchorage, bracing, and plumbing fixtures.
- D. Beginning of installation means installer accepts existing conditions.

3.02 ERECTION

- A. Erect in accordance with manufacturer's instructions.
- B. Install partition components secure, plumb and level.
- C. Attach panel brackets securely to walls and floors using appropriate anchor devices.
- D. Attach panels and plasters to brackets with through bolts and nuts.
- E. Anchor urinal screen panels to walls with two sets of panel brackets.
- F. Provide adjustment of floor panels with screw jack through steel saddle integral with plaster. Conceal floor fastenings with plaster shoes.
- G. Equip each toilet stall door with top and bottom hinges and door latch.
- H. Install door strike keeper on each plunger in alignment with door latch.
- I. Equip each toilet stall door with one coat hook and bumper.

3.03 ERECTION TOLERANCES

- A. Maximum Variation From Plumb or Level: 1/8 inch.
- B. Maximum Misplacement From Intended Position: 1/8 inch.

3.04 ADJUSTING

- A. Adjust and align door hardware to uniform clearance at vertical edges of doors.
- B. Clearance space not to exceed 3/16 inch.
- C. Adjust door hinges so that free movement is obtained and will locate in-swinging doors in partial open position when unlatched.

END OF SECTION

SECTION 108100 — SOIL TREATMENT

1.00 GENERAL Division 01 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Pest control soil treatment.
- B. Work under this Section shall be coordinated with Work under Section 061000, Rough Carpentry.

1.02 SITE CONDITIONS

- A. Site conditions shall be dry and weathered-in before Work under this Section begins.

2.00 PRODUCTS

- A. Provide a concentrated mixture of EPA approved toxic chemical mixture.

3.00 EXECUTION

- A. Application
- 1. After completion of exterior wall framing, including all work within the wall, apply toxic treatment mixture to 5"0" outside the building limits.

3.02 WARRANTY

- A. Provide one year warranty termite treatment by the applicator approved by the owner.

END OF SECTION

SECTION 101400 — SIGNAGE

1.00 GENERAL Division 01 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Provide all identifying devices.

2.00 PRODUCTS

2.01 SCHEDULE

- A. Work under this Section shall include providing and installing the following interior signs in addition to interior signs as indicated:
- 1. (1) each "HOP DELIVERIES" on rear service door.
 - 2. (1) each Occupancy Load sign.
 - 3. (2) or more each International Symbol for the Handicapped, location as directed within the parking area adjacent to the structure entry.
 - 4. (2) each "THIS DOOR TO REMAIN UNLOCKED DURING BUSINESS HOURS" for entry and vestibule doors.
 - 5. (1) each handicapped symbol for men's toilet room door, see Drawings.
 - 6. (1) each handicapped symbol for women's toilet room door, see Drawings.
 - 7. (1) set of street address numbers.
- B. The International symbol of accessibility shall be used on all doors leading the sanitary facilities.
- C. Letters and numbers on signs shall have a width-to-height ratio between (3) to five (5) and one (1) to one (1) and a stroke width-to-height ratio between one (1) to five (5) and one (1) to ten (10).
- D. Characters and symbols shall contrast with their background.
- E. Letters and numbers on signs shall be raised or incised at least 1/32" and shall be sans serif characters. Raised characters and symbols shall be at least 5/8" high but no higher than 2". Incised characters of symbols shall have a stroke width of at least 1/4". Symbols and pictographs on signs shall be raised or incised at least 1/32".
- F. The International symbol of accessibility shall be used on all doors leading the sanitary facilities.
- G. Projects within the State of California only. The following symbols shall be centered on the doorways 60" or more above the floor and shall be distinctly different from the door in color and contrast:
- 1. On doorways leading to men's sanitary facilities, provide a 1/4" thick equilateral triangle with edges 12" long and the vertex pointing upward.
 - 2. On doorways leading to women's sanitary facilities, provide a 1/4" thick, 12" diameter circle.

3.00 EXECUTION

3.01 INSTALLATION

- A. Install sign units and components at the locations shown or scheduled, securely mounted with concealed fasteners. Attach signs to substrates in accordance with the manufacturer's instructions.
- B. Install level, plumb, and at the proper height. Cooperate with other trades for installation of sign units to finish surfaces. Repair or replace damaged units as directed by the Owner's Project Manager.

END OF SECTION

SECTION 104413 — FIRE EXTINGUISHERS AND CABINETS

1.00 GENERAL Division 01 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Fire extinguishers, cabinets and accessories.

1.02 SUBSTITUTIONS

- A. In accordance with Section 01200.

1.03 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain products in this section from one manufacturer.
- B. UL-Listed Products: Provide new portable fire extinguishers which are UL-listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher indicated.

2.00 PRODUCTS

2.01 FIRE EXTINGUISHER CABINETS

- A. Refer to Drawings for type.
- 2.02 FIRE EXTINGUISHERS
- A. General: Provide fire extinguishers for each location indicated, which comply

DIVISION 12 — FURNISHINGS

SECTION 122413 — WINDOW SHADES

1.00 GENERAL Division 01 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Window shades.
- B. GC provides and install window shades through the following:
- Roll-A-Shade, Inc., Lake Blaine, CA
 - Attn: Ty Parelo
 - 954-245-5077 x112

1.02 MOUNTING BRACKETS

- A. Provide manufacturer's standard brackets designed to prevent accidental dislodgement of extinguisher, of sizes required for type and capacity of extinguisher indicated, in manufacturer's standard plated finish.
- 1. Provide brackets as per manufacturer's instructions.

3.00 EXECUTION

- 3.01 INSTALLATION
- A. Contractor shall furnish and install minimum three (3) type 2A10BC units and one (1) each type 3A-48BC unit at locations as directed. Add extinguishers at additional locations required by local authorities.
 - B. Install items indicated in this Section at locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities.
 - 1. Securely fasten mounting brackets to structure, square and plumb, to comply with manufacturer's instructions.

END OF SECTION

SECTION 102800 — TOILET ACCESSORIES

1.00 GENERAL Division 01 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes:
- 1. Toilet accessories.
 - 2. Attachment hardware.

1.02 REFERENCES

- A. ANSI/ASTM A123 — Zinc (Hot-Dip Galvanized) Coatings on Products Fabricated with Cold-Rolled, Pressed or Cold-Rolled Sheet Steel, Bars and Shaps.
- B. ANSI/ASTM A368 — Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
- C. ANSI/ASTM A386 — Assembly Coating (Hot-Dip) on Austenitic Steel Products.
- D. ANSI/ASTM B456 — Electroplated Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- E. ASTM A167 — Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
- F. ASTM A359 — Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

END OF SECTION

1.03 SUBMITTALS

- A. Submit product data under provisions of Section 01300.
- B. Provide product data on accessories describing size, finish, details of function, attachment methods.

1.04 REGULATORY REQUIREMENTS

- A. Conform to applicable code for installing work in conformance with Title 24 and ADA requirements.

1.05 SEQUENCING AND COORDINATION

- A. Coordinate the work of this Section with the placement of internal wall reinforcement to receive anchor attachments.
- B. Inserts and Anchors: Furnish inserts and anchoring devices that must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.
- C. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to ensure proper operation and servicing of accessory units.

1.06 WARRANTY

- A. Manufacturer's standard 1 year warranty for materials and workmanship.

2.00 PRODUCTS

2.01 MANUFACTURERS

- A. For each type of toilet accessory, obtain all items from a single manufacturer.
- B. Manufacturers: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
- 1

DIVISION 26 – ELECTRICAL

SECTION 260000 – GENERAL REQUIREMENTS FOR ELECTRICAL WORK

1.00 GENERAL Division 01 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: General requirements for electrical work. Applies to all Sections of Division 26.
- B. By entering into a contract with the Owner, Project Manager or General Contractor, the Contractor acknowledges that he has thoroughly reviewed and understands the intent of the Drawings and Specifications and acknowledges that the Drawings and Specifications are complete and can produce complete and functional systems.
- C. 1 year parts and labor.

1.02 DESCRIPTION OF WORK

- A. Furnish and install all electrical work in conformance with the requirements of this Section, as a supplement to other general requirements of the project.
- B. Furnish and install equipment, devices, units, systems and components in a completely workable installation to include the following:
1. Primary conduit, service entrance and main distribution equipment and metering provisions pursuant to serving utility requirements.
 2. Panelboards, distribution switchboards, feeders, sub-feeders, switches, starters and controls.
 3. Branch circuits for lighting, convenience outlets, building equipment, computers, kitchen and HVAC equipment.
 4. Telephone exchange systems, and primary service conduit as required by local telephone company.
 5. Items not specifically shown or specified but required for a complete operational site.

1.03 LAWS, CODES AND ORDINANCES

- A. All work and material shall conform to the requirements of OSHA and all National and State Laws and ordinances having jurisdiction of the job site. The National Electrical Code, latest Edition, shall be strictly adhered to (NEC requirements are considered). Where requirements of the National Electrical Code exceed N.E.C., the Contract Documents govern.
- B. All electrical systems shall be grounded in strict accordance with the requirements of the National Electrical Code.

1.04 STANDARDS OF MATERIAL AND WORKMANSHIP

- A. All material shall be new and shall bear the label of the Underwriter's Laboratories, Inc. All material shall be of the best grade and latest pattern of manufacture as specified. All work shall be performed in a neat workable manner and shall present a neat mechanical appearance when completed.
- B. Manufacturer's catalog numbers are specified for the purpose of establishing a standard. Substitutions will be permitted, prior to bidding, when approved by the Architect as being equal to, or better than the specified item in every respect.

1.05 DRAWINGS AND SPECIFICATIONS:

- A. The Drawings and these Specifications are complementary each to the other, and what is called for in one shall be called for by the other. The Contractor shall carefully examine the Drawings and Specifications and report any discrepancies affecting the work to be shown.
- B. Circuits and feeders shall be as shown and no deviations from the indicated outlet circuit grouping will be permitted, except by permission of the Architect. Branch circuits numbers indicated are to be followed unless change is approved by Architect.

1.06 FINAL COMPLETION AND TEST:

- A. Upon completion of the work, the various systems shall be tested for faulty circuits and grounds in accordance with the method and resistance values outlined in the National Electrical Code and for load balance on feeders and branch circuits.
- B. The completed system shall operate satisfactorily in every respect. Make any repairs or adjustments necessary to it to the satisfaction of the Owner.

1.07 EARTHWORK (EXCAVATION, FILL, BACKFILL, RESURFACING, ETC.) AS CONCRETE:

- A. Perform all necessary earthwork for work under this Section including excavation and backfilling. Replace material to produce condition equal to that before excavation began, including earth that has been compacted and any paving. Excessive trenching with open cut, brooding and shoring as required for safety. Grade trench bottoms to provide uniform bearing and support for roadways on undisturbed earth. Do not trench under or near footings without first consulting the Architect or Structural Engineer.

- B. Furnish and install all necessary concrete, steel, forms, etc., as shown and as required for complete installation under this Section. All materials and installation shall be provided and installed in strict accordance with specifications in other sections of these Specifications.

SECTION 260020 – ELECTRICAL CONNECTIONS FOR EQUIPMENT

1.00 GENERAL Division 01 and Section 260000 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Electrical connections for equipment.
- B. Furnish all labor and materials required for electrical service and control connections to the various items of equipment requiring electrical or wiring service throughout the project. This shall include submittal of shop drawings for special points detailed on drawings for control of electric feed applications, motors, etc.
- C. Coordinate with other trades for installation of required connections and services.
- D. Review the various equipment items proposed for use in this project to determine the electrical requirements for each item. Electric starters, where scheduled, disconnected switches and other devices shall be furnished as required for the complete installation of such items in conformance with governing codes and intended use.
- E. All control wiring and line voltage power interlock wiring shall be done as part of work of this Section.
- F. Provide all fused disconnect switches and magnetic starters.

1.02 RELATED WORK IN OTHER SECTIONS

- A. Refer to and coordinate with the General Requirements for Electrical and Mechanical Work.

2.00 PRODUCTS

2.01 MATERIALS

- A. Safety switches, fused or non-fused shall be Square "D", heavy duty or equl.

3.00 EXECUTION

3.01 INSTALLATION

- A. All material and devices shall conform to the requirements of the equipment to which it is connected and to applicable codes and ordinances.
- B. Provide NEMA 3R switches for outside and where noted on the Drawings or where required by code enforcing authorities.
- C. Raceway terminations at motors shall be by means of a short length of liquid tight flexible metallic raceway. Provide a code size green ground conductor and route to raceway and metal enclosure at each end of the motor feeder.
- D. Disconnects shall not be mounted on mechanical equipment nor shall an electrical device or conduit routing be located such as to interfere with the removal or maintenance of mechanical equipment. Only mounting points authorized by the equipment manufacturer shall be utilized for the mounting or connection of electrical devices.
- E. Perform all work in conformance with code requirements, other applicable sections of these Specifications, governing code and ordinances, and manufacturer's devices.
- F. All exposed flex conduits shall be liquid tight.

3.02 STARTERS

- A. All motor starters shall be furnished under this Section of the Specifications unless an integral part of equipment or noted as furnished with equipment specified under other sections of these Specifications. Contractor is responsible for coordination with other trades for these requirements.
- B. Separately mounted motor starters shall be across-the-line combination magnets, with 120 volt coils, fused disconnect switches, one additional convertible auxiliary contact for interlocking for controls unless indicated otherwise on the Drawings.
- C. Three phase manual starters shall be NEMA type suitable for the area in which it is used. In finished areas, use open type in flush enclosures.
- D. Single phase manual starters shall be provided with pilot light, single pole or double pole, and flush or surface mounted as required.
- E. Furnish and install the proper size overload thermal elements (determined from full load nameplate readings for motors and compensation for ambient temperature) in all starters whether they are furnished under this Section or other section. All starters shall have over load protection in all phase lines.
- F. Manufacturer shall be the same as distribution equipment manufacturer.

SECTION 260500 – WIRING DEVICES

1.00 GENERAL Division 01 and Section 260000 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Wiring Devices.
- B. Furnish and install all wiring devices and plates as required for the complete installation and operation of all systems throughout the project.

1.02 RELATED WORK IN OTHER SECTIONS

- A. Conductors; Conduits; Boxes; Fittings; Lighting Equipment and Lamps.

2.00 PRODUCTS

2.01 MATERIALS

- A. Single pole switches shall be Hubbell #1221-J rated 20 amps, 120V. Keyed switches.
- B. Three way switches shall be Hubbell #1223-1 rated 20 amps, 120V.
- C. Single pole switches with pilot light shall be spec. grade red lighted handle.

SECTION 260500 – WIRING DEVICES

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- A. Conductors; Conduits; Boxes; Fittings; Lighting Equipment and Lamps.

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- B. Furnish and install all wiring devices and plates as required for the complete installation and operation of all systems throughout the project.

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- C. Single pole switches with pilot light shall be spec. grade red lighted handle.

SECTION 260500 – WIRING DEVICES

1.00 GENERAL Division 01 and Section 260000 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Wiring Devices.
- B. Furnish and install all wiring devices and plates as required for the complete installation and operation of all systems throughout the project.

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- A. Conductors; Conduits; Boxes; Fittings; Lighting Equipment and Lamps.

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- C. Single pole switches with pilot light shall be spec. grade red lighted handle.

SECTION 260500 – WIRING DEVICES

1.00 GENERAL Division 01 and Section 260000 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Wiring Devices.
- B. Furnish and install all wiring devices and plates as required for the complete installation and operation of all systems throughout the project.

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- A. Conductors; Conduits; Boxes; Fittings; Lighting Equipment and Lamps.

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- C. Single pole switches with pilot light shall be spec. grade red lighted handle.

SECTION 260500 – WIRING DEVICES

1.00 GENERAL Division 01 and Section 260000 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Wiring Devices.
- B. Furnish and install all wiring devices and plates as required for the complete installation and operation of all systems throughout the project.

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- A. Conductors; Conduits; Boxes; Fittings; Lighting Equipment and Lamps.

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- C. Single pole switches with pilot light shall be spec. grade red lighted handle.

SECTION 260500 – WIRING DEVICES

1.00 GENERAL Division 01 and Section 260000 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Wiring Devices.
- B. Furnish and install all wiring devices and plates as required for the complete installation and operation of all systems throughout the project.

1.02 RELATED WORK IN OTHER SECTIONS

- A. Conductors; Conduits; Boxes; Fittings; Lighting Equipment and Lamps.

2.00 PRODUCTS

2.01 MATERIALS

- A. Single pole switches shall be Hubbell #1221-J rated 20 amps, 120V. Keyed switches.
- B. Three way switches shall be Hubbell #1223-1 rated 20 amps, 120V.
- C. Single pole switches with pilot light shall be spec. grade red lighted handle.

SECTION 260500 – WIRING DEVICES

1.00 GENERAL Division 01 and Section 260000 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Wiring Devices.
- B. Furnish and install all wiring devices and plates as required for the complete installation and operation of all systems throughout the project.

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- A. Conductors; Conduits; Boxes; Fittings; Lighting Equipment and Lamps.

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1.00 GENERAL Division 01 and Section 260000 requirements apply to this Section.

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- A. Section Includes: Wiring Devices.
- B. Furnish and install all wiring devices and plates as required for the complete installation and operation of all systems throughout the project.

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- A. Conductors; Conduits; Boxes; Fittings; Lighting Equipment and Lamps.

2.00 PRODUCTS

2.01 MATERIALS

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SECTION 260500 – WIRING DEVICES

1.00 GENERAL Division 01 and Section 260000 requirements apply to this Section.

1.01 SUMMARY

- A. Section Includes: Wiring Devices.
- B. Furnish and install all wiring devices and plates as required for the complete installation and operation of all systems throughout the project.

1.02 RELATED WORK IN OTHER SECTIONS

- A. Conductors; Conduits; Boxes; Fittings; Lighting Equipment and Lamps.

2.00 PRODUCTS

2.01 MATERIALS

- A. Single pole switches shall be Hubbell #1221-J rated 20 amps, 120V. Keyed switches.

SECTION 328400 – PLANTING

1.00 GENERAL Division 1 requirements apply to this Section.

A. Section Includes: Landscape irrigation, including: 1. Pipe and fittings, valves, sprinkler heads, emitters, bubblers, and accessories. 2. Control system.

1.02 RELATED SECTIONS A. Section 032300 – Plants

1.03 DESIGN CRITERIA A. All piping, valves, etc. shown within paved areas are for design distribution only and shall be installed in planting areas where possible. Avoid any conflicts between the sprinkler system, planting, and architectural features.

B. The Landscape Contractor is responsible for coordinating the irrigation system with the Architect (P.O.C.) Verify size and location of water meter.

1.04 DAMAGE A. Maintain adequate protection of all work from damage and protect the Owner's property from injury or loss arising in connection with work on this contract.

B. Avoid damage to any existing buildings, equipment, piping, pipe coverings, electrical systems, sewers, sidewalks, landscaping, grounds, above ground or underground installations or structures of any kind. Damage includes not only mechanical damage but damage from leaks in the irrigation system being installed, whether through negligence or otherwise. Provide adequate protection of adjacent property as provided by law and provide and maintain all passageways, guard fences, lights and other facilities for protection required by the Public Authority for local conditions. Securely cover all openings into the section of the system and components of the system as it is being installed to prevent obstructions in the pipe and the breakage, misuse, or disfigurement of the equipment.

C. Do not install any equipment in such a way as to endanger the public's safety now or in the future. Open trenches shall be barricaded or covered. Provide and maintain all lights, warning signs, barricades, etc. as may be required or necessary to protect the public. All above-ground equipment shall be installed adjacent to structures, fences or walls, or it shall be barricaded in such a way as to prevent tripping over it or running into it inadvertently. All spray heads within 18 inches (18") of walls, curbs or driveways shall be set up with positive spring retraction and retract flush with ground when not spraying.

1.05 SUBMITTALS A. Submit under provisions of Section 013000.

B. Visit the subject site to verify the various existing conditions. Any condition found to deviate from the Drawings shall be reported to the Owner's Project Manager prior to submitting final proposals.

C. Product Data: Provide complete and control system, wiring diagrams and manufacturer's installation instructions.

1.06 PROJECT RECORD DOCUMENTS A. Submit under provisions of Section 017300.

B. Provide the Owner with a clean set of marked reproductions of Record Drawings referencing all trenches with dimensions to nearest building or paving, and showing all changes and modifications to the Drawings. The record plan shall be completed and submitted to the Owner's Project Manager before final payment shall be made for work installed.

C. Controller Charts 1. Record drawings shall be approved by Owner's Project Manager before controller charts are prepared.

2. Relieve one controller chart for each controller.

3. The chart shall show the area controlled by the automatic controller and shall be the maximum size which the controller door will allow.

4. The chart is to be a reduced drawing of the actual on-sight system. However, in the event the controller sequence is not legible when the drawing is reduced, it shall be enlarged to a size that will be readable when reduced.

5. The chart shall be a bubble or bubble.

1.07 OPERATION AND MAINTENANCE DATA A. Submit under provisions of Section 017300.

B. Provide instructions for operation and maintenance of system and controls, seasonal activation and shutdown, and manufacturer's parts catalog.

C. Provide schedule indicating length of time each valve is required to be open to provide a determined amount of water.

D. It is the intent of the Drawings to indicate a complete sprinkler system, when installed will adequately and evenly irrigate all landscape areas shown, without further cost to the Owner. The landscape contractor shall examine the site prior to installation to satisfy himself that all areas will be adequately covered by a sprinkler system. Notify the Owner's Project Manager in writing of any discrepancies prior to installation. In the event notification is not made, the landscape contractor shall assume all responsibility for costs, including but not limited to, addition of heads, valves, trenching, etc., as deemed necessary by the Owner's Project Manager or appropriate agency.

1.08 QUALIFICATIONS A. Manufacturer: As specified under Irrigation Legend on Drawings.

B. Installer: Company specializing in performing the work of this section and providing continuous supervision by a competent foreman capable of interpreting the Drawings.

1.09 REGULATORY REQUIREMENTS A. Conform to applicable code for piping and component requirements.

B. Provide certificates of compliance from authority having jurisdiction indicating approval of products in system.

C. All submittals shall apply and apply for all permits required for this portion of the work.

1.10 COORDINATION A. Coordinate the work with site backfilling, landscape grading and delivery of plant material.

B. Coordinate all piping that is to pass under any pavement not yet installed.

C. Coordinate with Electrical Contractor and Project Engineer for a 115-volt electrical sub-out at each controller location.

1.11 EXTRA MATERIALS A. Furnish extra components under provisions of Section 017700:

1. 10 sprinkler heads.

2. 10 quick couple keys.

3. 2 valve box keys.

4. 2 controller keys.

5. 2 wrenches for each type head core and for removing and installing each type head.

1.12 QUALITY ASSURANCE A. Approval: Approval of drawings and materials and execution of operations required under these Drawings and Specifications are subject to the approval of the Landscape Architect and/or Project Manager.

B. Rejection: The Landscape Architect, with the concurrence of the Owner's Project Manager, will have the right to reject material and work which does not conform to the contract documents at any stage of the operation. All rejected material shall be promptly removed and corrected by the contractor as directed.

C. Sprinkler material is specified. The sprinkler system has been designed according to the operation characteristics of the specified equipment. Therefore, no substitution will be allowed from the equipment specified or its equal.

D. The Landscape Contractor is cautioned to defend the hydraulics of this system by following the Drawings and Specifications carefully. Particular attention should be given to: operating controllers properly, operating the system after flow controls or section valves have been adjusted to designed operating pressure, and following the manufacturer's recommendations for installation of the lines. The sizing of valves and pipes is specific to this design. If modifications are required, they shall be approved in writing by the Engineer to conform with the standard G.P.M. and velocity requirements. Submit calculations and modified layout on overlay sheet for written approval prior to work.

1.13 GUARANTEE A. The irrigation system shall be unconditionally guaranteed for a period of one year from the date of Start Turnover. Manufacturer warranties shall not replace this guarantee and Contractor shall be liable for repairs and replacement of failed material.

2.00 PRODUCTS A. Polyvinyl chloride pipe, hereinafter referred to as PVC pipe, shall have been manufactured in accordance with the product standard as follows:

1. Product standards PS-22-70 shall apply, and be the governing authority as applicable to mainline piping and shall be PVC Schedule 40 PS plastic pipe.

2. Product standards PS-22-70 shall apply and be the governing authority as applicable to lateral piping and shall be PVC Class 200 PS plastic pipe.

B. Riser: All risers to have double 90° swing joints. Risers and swing joint nipples shall be upsized PVC Schedule 80, threaded pipe. Fittings on swing joints shall be PVC Schedule 40 threaded elbows or street elbows.

C. Fittings: Fittings, in general, for all installations shall be considered incidental to the contract price and shall be the Contractor's responsibility to provide all of the required and necessary fittings to complete the contract. Plastic fittings shall be of schedule 40 polyvinyl chloride, injection molded and shall be solvent cemented and shall be compatible with the PVC pipe furnished.

D. Gasket: Gasket: ANS/ASME D2654 for PVC pipe and fittings.

E. Sleeve Material: PVC Schedule 40 PS sleeves shall be two (2) sizes larger than the pipe going through.

2.02 OUTLETS A. Outlet: Outlet: PVC construction.

B. Spray Type Sprinkler Head: Pop-Up head with pattern as indicated by symbols listed under Irrigation Legend on Drawings.

C. Quick Coupler: As listed under Irrigation Legend on Drawings.

2.03 VALVES A. Automatic control valves as indicated on the Drawings.

B. Backflow Preventers: Backflow prevention units shall be model nos. 8257, as manufactured by Fabco or equal, and of the size indicated on the Drawings. Such devices shall be acceptable to the authority having jurisdiction where the project is located.

C. Valve Box and Cover: Precast concrete with plastic cover. Carson Concrete Valve Box or equal.

2.04 CONTROLS A. Controller: Automatic controllers shall be as specified on Drawings. Provide all necessary features for programming as shown on the Irrigation Design plan. Each controller shall be enclosed in a sturdy, lockable, weatherproof mounting box and must be easily accessible for maintenance. Minor timing adjustments of the controller shall be possible to be made in the field. There shall be no time lags between sections or stations and the controller will be of a compatible type for operating the automatic control valve. If the timing mechanism of the controller has to be removed from the field for service, the controller shall be capable of continued manual operation. A summary of controller instructions shall be provided and posted adjacent to controller. See 02810 – 1.06GB.

B. Controller Housing: Controller shall be housed in a weatherproof metal housing with key lock.

C. Wire: 1. All electrical wire from automatic controller to control valves shall be minimum 14 UF direct burial or heavier gauge as required by length as per manufacturer's specifications. Control wires shall be connected to the control valve solenoids with Scotch Lock #3376 resin connectors or approved equal. All pilot wires will be of one size and all common ground wires will be of another color. Tape and bundle wires every ten feet (10'), tape to main line whenever possible.

2. Wire shall be furnished in minimum 2500' reels and splicing shall be minimized, with such splices made waterproof with the use of waterproof Scotchlodge or PenTite kits. All 24 volt wiring shall be done in accordance with existing codes.

3. All electrical materials and equipment shall be U.L. listed and meet all local codes and regulations. All exposed wire above grade shall be enclosed in conduit.

4. An expansion cart shall be provided with three feet of each wire connection. Expansion cart shall be of sufficient length at each splice connection at each electric control, so that in case of repair, the valve bonnet may be brought to the surface without disconnection of the control wires. Control wires shall be laid loosely in trench without stress or stretch of control wire conductors.

3.00 EXECUTION A. EXAMINATION 1. Verify design provisions of Section 010300.

2. Verify location of existing utilities. Excavate extreme care in excavating and working near existing utilities. Contractor shall be responsible for damages to utilities which are caused by his operation of neglect. Check existing utility drawings for existing utility locations. Two working days prior to any digging, contact Underground Service Alert 800/422-4133.

3. Verify required utilities are available, in proper location, and ready for use.

3.02 PREPARATION A. Verify design provision, if different, notify Owner's Project Manager before proceeding with work.

B. Layout and stake locations of system components.

C. Review layout requirements with other effected work. Coordinate locations of sleeves under paving to accommodate system.

D. Spacing of all heads are specific to the areas as shown on the Drawings. Contractor shall verify areas to be irrigated are the same size as shown on plan. If the size of the area has changed in any way, notify Owner's Project Manager in writing and make all the necessary adjustments in layout and number of heads. Refer to paragraph 1.13 of this section.

3.03 TRENCHING A. Remove lumber, rubbish and rocks from trenches. Provide firm, uniform bearing for entire length of each pipe line to prevent uneven settling.

B. Welding or blocking of pipe will not be permitted. Remove foreign matter or dirt from inside of pipe before welding, and keep piping clean by approved means and after final laying of pipe.

C. Backfill and pipe in trench.

D. Minimize trenching where feasible by placing pipes in joint trench, however, allow minimum of two inches (2") between outside diameter of pipes. No pipe shall be placed on top of another in joint trench. Trenches shall be wider than specified to allow side-to-side installation.

E. All piping shall be laid true to grade with changes of direction made by hand. 90° P.V.C. Tee 1 fittings. Solvent weld joints shall be used as per manufacturer's specifications and allowed to set twenty-four (24) hours minimum before water pressure is applied.

F. Initial backfill on plastic lines shall be of a fine granular material with no foreign matter larger than 3/4 inch in size, with a minimum of four inches (4") over and two inches (2") under.

G. Provide for a minimum of 18" cover for all pressure supply lines.

H. Provide for a minimum of 18" for all control wiring.

I. Provide for a minimum of 24" for all control wire and supply lines under paving.

J. Trenching and Backfill Under Paving 1. Trenches located under paving where paving will be installed shall be backfilled with sand (a layer six inches below the pipe and three inches above the pipe) and compacted in layers to 90% compaction, using manual or mechanical tamping devices. Trenches for piping shall be compacted to equal compaction of the existing adjacent unburied soil and shall be left to cure for a firm unyielding condition. All trenches shall be backfilled with sand adjoining grade. The sprinkler irrigation Contractor shall set in place, cap, measure and test all piping under paving prior to the paving work.

2. Where any cutting or breaking of sidewalks and/or concrete is necessary, it shall be done and replaced by the Contractor as part of the contract cost. Permission to cut or break sidewalks and/or concrete shall be obtained from the Owner's Project Manager. No hydraulic driving will be permitted under concrete pipes except as specifically approved.

K. Assemblies 1. Routing of sprinkler irrigation lines as indicated on the drawings is diagrammatic. Install lines and various assemblies in planting areas where possible and to conform with the details shown on the drawings.

2. Install no multiple assemblies on plastic lines. Provide each assembly with its own outlet.

3. Install all assemblies specified herein in accordance with respective details. In absence of detail drawings or specifications pertaining to specific items required for this section, the Contractor shall use a quality production source and standard practice with prior approval of the Owner's Project Manager.

4. PVC pipe and fittings shall be thoroughly cleaned of dirt, dust and moisture before installation. Installation solvent-welding methods shall be as recommended by the pipe and fitting manufacturer.

5. On PVC to metal connections, use the Contractor's shop weld the metal connections first. Teflon tape or approved equal shall be used on all threaded PVC-to-PVC joints and on all threaded PVC-to-metal joints.

6. Light wrench pressure is all that is required. Where threaded PVC connections are required, use threaded PVC adapters into which the pipe may be welded.

L. Install valve boxes 12 inches (12") from and perpendicular to walks, curbs, buildings or landscape features. All multiple valve box groups, each box shall be an equal distance from the walk, curb, etc., and each box shall be 6 inches (6") apart. Short side of valve box shall be flush with finished grade.

M. The controller locations are approximate. Field verify installation of controller with Owner's Project Manager prior to installation. 115-Volt electrical supply is provided for immediate utilities. Use this with metal consult draw.

N. Provide waterproof connections for outdoor installation. Contractor to program controllers for proper hydraulic flows. Install per manufacturer's specifications. Furnish and install battery backup for controllers. Install separate common wire for each controller.

O. Install control wiring in accordance with Section 16123. Provide 10 inch expansion coil of all valve to which controls are connected, and all 10 ft intervals. Bury wire beside pipe.

P. Set all pop-up sprinklers flush with finish grade and one inch (1") horizontally away from edge of walks, curbs, leader boards, etc. Spray heads to be supplied in accordance with the specifications. Nozzling shall be in accordance with the Drawings and Specifications. The correct degree of arc of nozzle shall be determined by the area to be covered and by the wind conditions that may effect coverage.

3.04 INSTALLATION A. Installation of the system main shall be in accordance with the manufacturer's instructions and shall proceed from the point of connection of supply for the system pumping station, reservoir, or existing line. Concrete thrust blocks shall be installed at any directional changes in the pipeline in accordance with pipe manufacturer's instructions. The main shall be flushed and pressure tested for 24 hours prior to making any lateral connections.

B. Lateral pipes and fittings shall be installed in accordance with the manufacturer's recommendations, including the sizing of PVC-PVC pipe to prevent excessive strain when contracting in cold weather.

C. Use only the solvent supplied and recommended by the PVC pipe manufacturer to make solvent-welded joints. The pipe and fittings shall be thoroughly cleaned of dirt, dust and moisture before applying solvent.

D. Install backflow prevention device in accordance with local code. Verify with city any inspection or pressure tests required.

3.05 FIELD QUALITY CONTROL A. All excavations covered in this section shall be undisturbed and it is to include earth, loose rock, rock, or any combination thereof, in wet or dry state.

B. All trenches shall be backfilled with the material removed, except where special backfill specifications for certain pipe may specify otherwise. In this case, the special backfill specifications shall take precedence over this general specification.

C. All trench backfill shall be water settled and compacted in order to prevent after-settling.

D. Where the area is not sodded, all trenches and adjoining areas shall be hand raked to leave grade in a good or better condition than before installation.

E. Shrubs shall not be moved or damaged, except where it is impossible to make the installation otherwise, then shrubs may be moved, provided ample precautions are taken to prevent damage to the shrubs.

F. It is understood that the piping layout is diagrammatic and piping shall be routed around trees and shrubs in such a manner as to avoid damages to plants.

G. Install material in strict accordance to the manufacturer's installation specifications, which shall be considered a supplement to these Specifications.

H. No water shall drain onto walks, curbs or streets. Install aridrain check valves under sheds where drainage occurs.

I. Adjust heads to minimize spray or sidewalks, fences, walls and buildings. Absolutely no water shall spray or drain onto stairs or steps. Program controller for multiple start times to prevent runoff.

J. Handling of PVC Pipe and Fittings: The Contractor is cautioned to exercise care in handling, unloading, and storing of PVC pipe and fittings. All PVC pipe shall be transported in a vehicle which allows the length of the pipe to lie flat so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged will be discarded and, if installed, shall be replaced with new piping.

K. Testing of Irrigation System Note: Testing of pressure main lines shall occur prior to installation of electric control valves.

1. The Contractor shall request the presence of the Owner's Project Manager at least 48 hours in advance of testing.

2. Test all pressure lines under hydrostatic pressure of 150 lbs./sq. in. and prove watertight.

3. All piping under paved areas shall be tested under hydrostatic pressure of 150 lbs./sq. in. and prove watertight prior to paving.

4. Sustain pressure in lines for not less than two hours. If leaks develop, replace pipes and repeat test until entire system is proven watertight.

3.06 BACKFILLING A. Backfill for trenching shall be compacted to a dry density equal to the adjacent undisturbed soil and shall conform to adjacent grades within 10' of pipe, sunken areas, ramps, or other irregularities. Any trenches which settle below surrounding grade shall be brought to existing grade by contractor at contractor's expense.

3.07 ADJUSTING A. Upon completion of the installation of the total system, test, set and adjust all component parts of the system to insure that the overall operation of the system is functioning at peak efficiency. This includes the programming and adjustments of all pumps, controllers, sprinkler heads, pressure regulators, valves, etc.

3.08 DEMONSTRATION A. Instruct Owner's personnel in operation and maintenance of system, including adjusting of sprinkler heads. Use operation and maintenance manuals as basis for demonstration. Provide watering schedule of time required for each zone.

B. Provide As-Built drawings indicating locations of heads, controllers, and valve boxes.

END OF SECTION

SECTION 329300 – PLANTS

1.00 GENERAL Division 1 requirements apply to this Section.

1.01 SUMMARY A. Section Includes: Landscaping work.

1.02 QUALITY ASSURANCE A. Securely attach durable, legible labels, using weather resistant ink, stating the plant name and size. Each plant, bundle, and container of plant materials delivered to the site shall have such a label.

B. The Owner's Project Manager may review, all plant materials before planting.

and accept or reject same. Plant materials found to be unacceptable shall be removed from the site and replaced.

1.03 DELIVERY, STORAGE, AND HANDLING A. All plants shall be delivered to the site as soon as possible. Do not expose plant materials to excessive sun or drying winds while in storage before planting.

B. All balled burlapped stock, not planted within 4 hours after delivery to the site shall be "heeled in" and properly maintained, until planted.

C. Materials shall be properly protected, maintained, and watered, until planted.

1.04 JOB CONDITIONS A. Planting: Perform actual planting only when weather and soil conditions are suitable in accordance with locally accepted practice.

1.05 WARRANTY A. All plant materials shall be guaranteed for the following periods after acceptance and acceptance of the Work by the Owner. Replacement plants shall be guaranteed for 1 year.

1. Shrubs 90 days

2. Trees 1 year

3. Plants from flats 90 days

B. All permanent grass lawn areas shall be guaranteed to provide a continued growth of an even, dense lawn for a period of 90 days from the date of acceptance by the Owner. The written guarantee shall include reseeded of all areas required to insure a uniform dense lawn within the guarantee period.

2.00 PRODUCTS A. The species (scientific and common names) sizes, manner in which shall be furnished, and the approximate number required, are given in the plant list.

B. Plant quantities on the list are indicated only for convenience. Furnish all plant materials necessary to complete the plantings as indicated on the plant list. Surplus or shortages based on the plant list shall not be considered for additional costs to the Owner.

2.01 PLANTS A. The species (scientific and common names) sizes, manner in which shall be furnished, and the approximate number required, are given in the plant list.

B. Plant quantities on the list are indicated only for convenience. Furnish all plant materials necessary to complete the plantings as indicated on the plant list. Surplus or shortages based on the plant list shall not be considered for additional costs to the Owner.

2.02 SOILS A. General 1. The following organic and soil amendments and fertilizer are to be used for bid-price only. Specific amendments and fertilizer specification will be made after grading operations are complete and samples tested by landscape Contractor.

2. The water has been completely drained, planting tablets shall be placed as indicated below:

3. One tablet per 5' x 10' area

4. Three tablets per 5' x 10' area

5. The remainder of the hole shall be backfilled.

6. Planting tablets shall be set with each plant on top of the root ball while the plants are still in their containers as the root ball number of tablets to be used in each hole can be easily verified.

7. After backfilling, an arched basin shall be constructed around each plant. Each basin shall be of a depth sufficient to hold at least two inches of water. Basins shall be of a size suitable for the installed plant. In no case shall the basin for a 1/2 gallon plant be less than 18 inches in diameter. The basins shall be constructed of amended backfill materials.

8. Puncturing planting shall be limited to the minimum necessary to remove injured twigs and branches and to compensate for loss of roots during transplanting, but never to exceed one third of the branching structure.

9. Upon approval of the Owner's Project Manager, pruning may be done before delivery of plants, but not before plants have been inspected and approved.

C. Planting of Ground Covers 1. Ground cover plants shall be grown in flats, peat pots, or taken in cuttings, as indicated on the plans. Flat ground plants (rooted cuttings) shall remain in those flats until transplanting. The flat's soil shall contain sufficient moisture so that it will not fall apart when filled with plants. If plants from peat pots are used, the pots shall be protected at all times prior to planting to prevent unnecessary drying of the root ball.

2. Ground cover shall be planted in straight rows and evenly spaced, unless otherwise noted, and at intervals called out on the drawings. Triangular spacing shall be used unless otherwise noted in drawings.

3. Each rootlet plant shall be planted with its proportionate amount of flat soil or in a peat pot, in a manner that will insure minimum disturbance of the root system, but in no case shall this depth be less than two plantings. To avoid drying out, plantings shall be immediately sprinkled after planting until the entire area is soaked to the full depth of each hole, unless otherwise noted on the drawings.

4. Core shall be exercised at all times to protect the plants after planting.

5. Any damage to plants by trimming or other operations of the contractor shall be repaired immediately at no additional cost to the Owner.

D. Weed Control: After all preparation and establishment of first two groups, or any planting, the Contractor shall irrigate thoroughly for two to three weeks, or until the weed seeds have germinated. When there is sufficient weed seed germination, the Contractor shall apply a post-emergent control weed killer according to the directions of the manufacturer. The Contractor shall then wait on additional two weeks to allow the weed killer to dissipate, then plant as indicated in the plans and specifications. Contractor shall remove any foliage and/or roots.

3.06 ACCEPTANCE A. Before final acceptance, remove all plant materials, which are dead, not true to name, and otherwise unacceptable from the site and replace with healthy plants as specified.

B. Repair or replace all damaged pavement areas, curbs, irrigation, and other structures upon completion of Work under this Section. All repair work and replacement work shall match adjacent work in all respects.

C. Maintain all plant materials until final acceptance of the project by the Owner. Final acceptance of Work under this Section will be made by the Owner, after the guarantee periods specified in Section 1.04, and a final review of the Work. Landscape Contractor to provide bid for 1-year maintenance of all plants and trees installed with initial bid to the General Contractor.

END OF SECTION

operational and approved prior to planting.

B. Excavation for Planting 1. Slope a. Vertical sides and flat bottom.

2. Plant pits to be circular for conical material.

3. Size: All shrubs shall have planting pits dug twice the diameter and twice the depth of the root ball. Backfill around the rootball with amended backfill mix.

4. Protect all areas from excessive compaction when trucking plants or other material to the planting site.

5. Care Removal: a. Cut corners on two sides with an acceptable cut cutter.

6. Do not injure root ball.

7. Do not cut corners with spade or ax.

8. Carefully remove plants without injury or damage to root ball.

9. After removing plant, superficially cut edges with knife on three sides.

10. Center plant in pit or trench.

11. Place plant with fullest growth in position until soil has been tamped to thoroughly saturate the root ball and adjacent soil.

12. Set plant plants and hold rigidly in position until soil has been tamped firmly around root ball or roots.

13. Container plants shall be backfilled with: a. 6 parts by volume or one-half bushel of peat moss.

14. 10 lbs. Gr-Plant mix per cubic yard of mix.

15. In no case shall peat moss be used in place of the Gr-Plant mix.

16. All plants which settle deeper than specified above shall be raised to the correct level. After the plant has been placed, additional backfill shall be added to the hole to cover approximately one half the height of the root ball. At this stage, water shall be added to the top of the partly filled hole to thoroughly saturate the root ball and adjacent soil.

17. The preceding for bid balls only and specific backfill specifications will be made after rough grading operations are complete and soil samples are tested by Landscape Contractor under the direction of the Owner's Project Manager.

18. Plant quantities on the list are indicated only for convenience. Furnish all plant materials necessary to complete the plantings as indicated on the plant list. Surplus or shortages based on the plant list shall not be considered for additional costs to the Owner.

2.01 PLANTS A. The species (scientific and common names) sizes, manner in which shall be furnished, and the approximate number required, are given in the plant list.

B. Plant quantities on the list are indicated only for convenience. Furnish all plant materials necessary to complete the plantings as indicated on the plant list. Surplus or shortages based on the plant list shall not be considered for additional costs to the Owner.

2.02 SOILS A. General 1. The following organic and soil amendments and fertilizer are to be used for bid-price only. Specific amendments and fertilizer specification will be made after grading operations are complete and samples tested by landscape Contractor.

2. The water has been completely drained, planting tablets shall be placed as indicated below: