

## BALUSTRADE SYSTEMS SPECIFICATION 06447

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### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Balusters.
- B. Railings.
- C. Decorative panels.
- D. Newel posts.
- E. Newel caps.
- F. Accessories and hardware.

#### 1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry.
- B. Section 06200 - Finish Carpentry.
- C. Section 06400 - Architectural Woodwork.
- D. Section 07900 - Joint Sealants.
- E. Section 09900 - Paints and Coatings.

#### 1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM):
  - 1. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Submit manufacturer’s descriptive literature, specifications, installation instructions and limited warranty.
- C. Shop Drawings: Submit shop drawings showing location, profiles and product components, including but not limited to anchorage requirements, accessories, and provisions for achieving desired finishes.

- D. Selection Samples: For each product specified, two samples representing manufacturer's full range of available finishes and textures.
- E. Verification Samples: For each product specified, two samples, full size or minimum 12 inches (300 mm) square, representing actual product finishes and textures.
- F. Quality Assurance Submittals:
  - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
  - 2. Manufacturers Instructions: Manufacturer's installation instructions.
  - 3. Manufactures Field Reports: Manufacturer's field reports specified herein.
- G. Closeout Submittals: Submit manufacturer's standard warranty documents.

### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall have five years experience manufacturing and fabricating products of similar type and scope as those specified in this section.
- B. Installer Qualifications: Installer shall have five years experience installing products of similar type and scope as those specified in this section.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship, finish are approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work. Mock-up may be incorporated into finished work upon approval from Owner.
- D. Performance Requirements: Provide units which have been manufactured, fabricated and installed to maintain performance criteria stated by manufacturer without defects, damage, or failure.
- E. Fire Test Characteristics: Provide moulded units in compliance with ASTM E 84 for Class A or Class B requirements by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.
- F. Preinstallation Meetings: Conduct a preinstallation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Ordering: Comply with manufacturer's instructions and lead time requirements to avoid construction delays.
- B. Delivery: Store products in manufacturer's labeled, unopened packaging until ready for installation and field finishing.
- C. Storage and Protection: Store materials protections from exposure to harmful weather conditions and within manufacturer's published limits for temperature and humidity.

### 1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Field Measurements: Verify actual measurements and openings by field measurements before fabrication. Show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays

## PART 2 .PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Spectis Moulders Inc.; 100 Cedar Dr.; P.O. Box 970; Niverville, MB, Canada R0A 1E0; ASD. Toll Free: 800-685-9981; Phone: 204-388-6700; Fax: 204-388-6710; E-mail: [contactus@spectis.com](mailto:contactus@spectis.com); Web Site: [www.spectis.com](http://www.spectis.com).
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

### 2.2 BALUSTERS

- A. Balusters: As manufactured by Spectis Moulders Inc.
  - 1. Stair Balusters: Extended balusters for stairs in locations as indicated on Drawings.
  - 2. Models: As indicated on Drawings.
  - 3. Models: As selected by Architect.
  - 4. Models: All maximum spacing based on 4" ball code.
  - 5. Model: BAL2000-16, maximum spacing of 6-9/16 inches (167 mm).
    - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
  - 6. Model: BAL2000-20, maximum spacing of 6-9/16 inches (167 mm).
    - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
  - 7. Model: BAL2000-22, maximum spacing of 6-9/16 inches (167 mm).
    - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
  - 8. Model: BAL2000-22-EXT30, maximum spacing of 6-9/16 inches (167 mm).
    - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
  - 9. Model: BAL2000-25, maximum spacing of 6-9/16 inches (167 mm).
    - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
  - 10. Model: BAL2000-25-EXT32, maximum spacing of 6-5/8 inches (168 mm).
    - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
  - 11. Model: BAL2000-25-EXT33, maximum spacing of 6-9/16 inches (167 mm).
    - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
  - 12. Model: BAL2000-25-EXT35, maximum spacing of 6-9/16 inches (167 mm).
    - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
  - 13. Model: BAL2000-28, maximum spacing of 6-1/2 inches (165 mm).
    - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
  - 14. Model: BAL2000-30, maximum spacing of 6-7/16 inches (164 mm).
    - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
  - 15. Model: BAL2000-30-EXT36, maximum spacing of 6-7/16 inches (164 mm).
    - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
  - 16. Model: BAL2000-30FS, maximum spacing of 6-7/16 inches (164 mm).

- a. Construction: Standard/Fossil Stone reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 17. Model: BAL2001-25, maximum spacing of 6-7/8 inches (175 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 18. Model: BAL2002-20, does not meet 4 inch (102 mm) ball code rule
  - a. Construction: Round/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 19. Model: BAL2005-20, maximum spacing of 6-5/16 inches (160 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 20. Model: BAL2005-20-EXT23, maximum spacing of 6-5/16 inches (160 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 21. Model: BAL2005-20-EXT26, maximum spacing of 6-5/16 inches (160 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 22. Model: BAL2005-20-EXT32, maximum spacing of 6-5/16 inches (160 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 23. Model: BAL2006-32, maximum spacing of 5-1/4 inches (133 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 24. Model: BAL2007-30, maximum spacing of 6-1/8 inches (156 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 25. Model: BAL2008-18, maximum spacing of 5-7/8 inches (149 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 26. Model: BAL2009-24, maximum spacing of 5-3/16 inches (132 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 27. Model: BAL2009-26, maximum spacing of 5-3/16 inches (132 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 28. Model: BAL2010-31, does not meet 4 inches (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 2-1/2 inch (63.5 mm) PVC pipe.
- 29. Model: BAL2011-20, maximum spacing of 6-13/16 inches (173 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 30. Model: BAL2012-25, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 31. Model: BAL2012-25FS, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Fossil Stone reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 32. Model: BAL2013-29, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 1-1/2 inch (38 mm) PVC pipe.
- 33. Model: BAL2013-29H, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth, not reinforced.
- 34. Model: BAL2014-24, maximum spacing of 7-7/16 inches (189 mm).
  - a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
- 35. Model: BAL2015-14.5, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 36. Model: BAL2015-14.75, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 37. Model: BAL2015-18.5, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 38. Model: BAL2015-20, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 39. Model: BAL2015-21, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 40. Model: BAL2015-24, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.

41. Model: BAL2015-28, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
42. Model: BAL2015-32, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
43. Model: BAL2015-34, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
44. Model: BAL2015-36, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
45. Model: BAL2015-37.25, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
46. Model: BAL2015-37.75, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
47. Model: BAL2015-48, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
48. Model: BAL2015-58, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
49. Model: BAL2015-63, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
50. Model: BAL2016-27, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
51. Model: BAL2017-22, maximum spacing of 6-3/16 inches (157 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
52. Model: BAL2018-12, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
53. Model: BAL2018-12.25, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
54. Model: BAL2018-14, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
55. Model: BAL2018-20, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
56. Model: BAL2018-25, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
57. Model: BAL2018-25P, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
58. Model: BAL2018-27, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
59. Model: BAL2018-30, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
60. Model: BAL2018-31, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
61. Model: BAL2018-32, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
62. Model: BAL2019-13, maximum spacing of 5-1/8 inches (131 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
63. Model: BAL2019-15, maximum spacing of 5-1/16 inches (129 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
64. Model: BAL2019-18, maximum spacing of 5 inches (127 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
65. Model: BAL2019-20, maximum spacing of 5 inches (127 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.

66. Model: BAL2019-20-EXT22, maximum spacing of 5 inches (127 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
67. Model: BAL2019-20-EXT27, maximum spacing of 5 inches (127 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
68. Model: BAL2019-20P, maximum spacing of 5-11/16 inches (144 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
69. Model: BAL2019-24, maximum spacing of 5 5-1/16 inch (127 129 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
70. Model: BAL2019-28, maximum spacing of 5-1/16 inches (129 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
71. Model: BAL2019-28-EXT32, maximum spacing of 5-1/16 inches (129 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
72. Model: BAL2019-30, maximum spacing of 5 inches (127 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
73. Model: BAL2019-30EXT, maximum spacing of 5-1/16 inches (129 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
74. Model: BAL2019-30-EXT40, maximum spacing of 5-1/16 inches (129 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
75. Model: BAL2019-32, maximum spacing of 4-7/8 5-1/8 inches (124 130 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
76. Model: BAL2019-34, maximum spacing of 4-13/16 inches (122 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
77. Model: BAL2019-36, maximum spacing of 4-13/16 5-1/16 inches (122 129 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
78. Model: BAL2020-28, maximum spacing of 6-7/8 inches (175 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
79. Model: BAL2020-31, maximum spacing of 6-7/8 inches (175 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
80. Model: BAL2020-36, maximum spacing of 6-7/8 inches (175 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
81. Model: BAL2021-28, maximum spacing of 6-1/4 inches (159 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
82. Model: BAL2021-38, maximum spacing of 6-1/4 inches (159 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
83. Model: BAL2022-21, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
84. Model: BAL2022-21-EXT23, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
85. Model: BAL2022-24, maximum spacing of 6-3/8 inches (162 mm).

- a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 86. Model: BAL2023-18, maximum spacing of 4-13/16 inches (122 mm).
  - a. Construction: Standard/Smooth reinforced with 3/8 inch (9.5 mm) aluminum pipe.
- 87. Model: BAL2024-26, maximum spacing of 5 inches (127 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 88. Model: BAL2024-26-EXT36, maximum spacing of 5 inches (127 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 89. Model: BAL2025-23, maximum spacing of 6-1/2 inches (165 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 90. Model: BAL2025-25, maximum spacing of 6-1/2 inches (165 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 91. Model: BAL2026-16, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 92. Model: BAL2027-14, maximum spacing of 5-11/16 inches (144 mm).
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 93. Model: BAL2027-19, maximum spacing of 6-11/16 inches (170 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 94. Model: BAL2027-20, maximum spacing of 6-13/16 inches (173 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 95. Model: BAL2027-20FS, maximum spacing of 6-13/16 inches (173 mm).
  - a. Construction: Standard/Fossil Stone reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 96. Model: BAL2027-21, maximum spacing of 6-11/16 inches (170 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 97. Model: BAL2027-22, maximum spacing of 6-3/4 inches (171 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 98. Model: BAL2027-22-EXT24, maximum spacing of 6-3/4 inches (171 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 99. Model: BAL2027-22-EXT30, maximum spacing of 6-3/4 inches (171 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 100. Model: BAL2027-22-EXT32, maximum spacing of 6-3/4 inches (171 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 101. Model: BAL2027-22FS, maximum spacing of 6-3/4 inches (171 mm).
  - a. Construction: Standard/Fossil Stone reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 102. Model: BAL2027-26, maximum spacing of 6-11/16 inches (170 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 103. Model: BAL2027-26-EXT34, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Reinforced with pipe.
- 104. Model: BAL2027-27 max spacing of 6-11/16 inches (170 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 105. Model: BAL2027-28, maximum spacing of 6-5/8 inches (168 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 106. Model: BAL2027-29, maximum spacing of 6-11/16 inches (170 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 107. Model: BAL2027-29-EXT32, maximum spacing of 6-11/16 inches (170 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 108. Model: BAL2027-29-EXT32FS, maximum spacing of 6-11/16 inches (170 mm).
  - a. Construction: Standard/Fossil Stone reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 109. Model: BAL2027-29-EXT35, maximum spacing of 6-11/16 inches (170 mm).

- a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 110. Model: BAL2027-36, maximum spacing of 6-11/16 inches (170 mm).
- a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 111. Model: BAL2028-12, does not meet 4 inch (102 mm) ball code rule.
- a. Construction: Reinforced with pipe Not reinforced.
- 112. Model: BAL2028-9, does not meet 4 inch (102 mm) ball code rule.
- a. Construction: Reinforced with pipe Not reinforced.
- 113. Model: BAL2029-30, maximum spacing of 4-15/16 inches (125 mm).
- a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 114. Model: BAL2030-18, maximum spacing of 6-5/16 inches (160 mm).
- a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 115. Model: BAL2031-25FS, maximum spacing of 6-9/16 inches (167 mm).
- a. Construction: Standard/Fossil Stone reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 116. Model: BAL2031-28FS, maximum spacing of 6-1/2 inches (165 mm).
- a. Construction: Standard/Fossil Stone reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 117. Model: BAL2031-30FS, maximum spacing of 6-7/16 inches (164 mm).
- a. Construction: Standard/Fossil Stone reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 118. Model: BAL2032-29, does not meet 4 inch (102 mm) ball code rule.
- a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 119. Model: BAL2032-31, does not meet 4 inch (102 mm) ball code rule.
- a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 120. Model: BAL2032-31FS, does not meet 4 inch (102 mm) ball code rule.
- a. Construction: Standard/Fossil Stone reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 121. Model: BAL2033-10, maximum spacing of 6 inches (152 mm).
- a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 122. Model: BAL2033-16, maximum spacing of 5-15/16 inches (151 mm).
- a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 123. Model: BAL2033-20, maximum spacing of 5-7/8 inches (149 mm).
- a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 124. Model: BAL2033-20-EXT32, maximum spacing of 5-15/16 6-7/8 inches (151 175 mm).
- a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 125. Model: BAL2033-26, maximum spacing of 5-15/16 inches (151 mm).
- a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 126. Model: BAL2033-26-EXT32, maximum spacing of 5-7/8 5-15/16 inches (149 151 mm).
- a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 127. Model: BAL2034-28, maximum spacing of 7-5/8 inches (194 mm).
- a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 128. Model: BAL2034-28-EXT35, does not meet 4 inch (102 mm) ball code rule.
- a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 129. Model: BAL2035-28, does not meet 4 inch (102 mm) ball code rule.
- a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
- 130. Model: BAL2036-21, maximum spacing of 5-7/8 inches (149 mm).
- a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 131. Model: BAL2036-22, maximum spacing of 5-7/8 inches (149 mm).
- a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 132. Model: BAL2036-29, maximum spacing of 5-7/8 inches (149 mm).
- a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.

133. Model: BAL2037-26, maximum spacing of 6-1/8 inches (156 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
134. Model: BAL2038-36, maximum spacing of 5-3/4 inches (146 mm).
  - a. Construction: Round/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
135. Model: BAL2039-18, maximum spacing of 5-3/16 inches (132 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
136. Model: BAL2039-18-EXT21, maximum spacing of 5-3/16 inches (132 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
137. Model: BAL2040-23, maximum spacing of 7-5/8 inches (194 mm).
  - a. Construction: Square/Smooth reinforced with 2 inch (38 mm) PVC pipe.
138. Model: BAL2041-29, maximum spacing of 6-7/16 inches (164 mm).
  - a. Construction: Round/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
139. Model: BAL2041-29FS, maximum spacing of 6-7/16 inches (164 mm).
  - a. Construction: Round/Fossil Stone reinforced with 1-1/4 inch (32 mm) PVC pipe.
140. Model: BAL2042-27, maximum spacing of 5-7/8 inches (149 mm).
  - a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
141. Model: BAL2042-30, maximum spacing of 5-13/16 inches (148 mm).
  - a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
142. Model: BAL2042-30-EXT36, maximum spacing of 5-7/8 inches (149 mm).
  - a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
143. Model: BAL2043-19, maximum spacing of 6-5/8 inches (168 mm).
  - a. Construction: Round/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
144. Model: BAL2044-20, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
145. Model: BAL2044-27, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
146. Model: BAL2045-12, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Round/Smooth, not reinforced.
147. Model: BAL2046-14, maximum spacing of 5-1/8 inches (131 mm).
  - a. Construction: Round/Smooth reinforced with 1 inch (25 mm) PVC pipe.
148. Model: BAL2046-25, maximum spacing of 5-1/8 inches (131 mm).
  - a. Construction: Round/Smooth reinforced with 1 inch (25 mm) PVC pipe.
149. Model: BAL2046-25FS, maximum spacing of 5-1/8 inches (131 mm).
  - a. Construction: Round/Fossil Stone reinforced with 1/2 inch (13 mm) aluminum pipe.
150. Model: BAL2046-26, maximum spacing of 5-1/8 inches (131 mm).
  - a. Construction: Round/Smooth reinforced with 1 inch (25 mm) PVC pipe.
151. Model: BAL2046-32, maximum spacing of 5-1/8 inches (131 mm).
  - a. Construction: Round/Smooth reinforced with 1 inch (25 mm) PVC pipe.
152. Model: BAL2046-36, maximum spacing of 5-1/8 inches (131 mm).
  - a. Construction: Round/Smooth reinforced with 1 inch (25 mm) PVC pipe.
153. Model: BAL2046-38, maximum spacing of 5-1/8 inches (131 mm).
  - a. Construction: Round/Smooth reinforced with 1 inch (25 mm) PVC pipe.
154. Model: BAL2046-42, maximum spacing of 5-1/8 inches (131 mm).
  - a. Construction: Round/Smooth reinforced with 1 inch (25 mm) PVC pipe.
155. Model: BAL2047-31, maximum spacing of 6-5/8 inches (168 mm).
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
156. Model: BAL2047-31-EXT34, maximum spacing of 6-5/8 inches (168 mm).
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
157. Model: BAL2048-25, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.

- 158. Model: BAL2049-26, maximum spacing of 7-7/8 inches (200 mm).
  - a. Construction: Standard/Smooth reinforced with 2-1/2 inch (63.5 mm) PVC pipe.
- 159. Model: BAL2050-32, maximum spacing of 6-7/16 inches (164 mm).
  - a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
- 160. Model: BAL2051-24, maximum spacing of 5-7/8 inches (149 mm).
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 161. Model: BAL2052-18 max spacing of 5-13/16 inches (148 mm).
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 162. Model: BAL2053-28, maximum spacing of 6-1/8 inches (156 mm).
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 163. Model: BAL2053-36, maximum spacing of 6-1/8 inches (156 mm).
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 164. Model: BAL2054-24, maximum spacing of 6-7/8 inches (175 mm).
  - a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
- 165. Model: BAL2054-24S, maximum spacing of 6-7/8 inches (175 mm).
  - a. Standard/Stucco texture reinforced with 2 inch (38 mm) PVC pipe.
- 166. Model: BAL2055-32, maximum spacing of 5-1/2 inches (140 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 167. Model: BAL2056-19, maximum spacing of 6-9/16 inches (167 mm).
  - a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
- 168. Model: BAL2057-33, maximum spacing of 5-9/16 inches (141 mm).
  - a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
- 169. Model: BAL2058-24, maximum spacing of 5-15/16 inches (151 mm).
  - a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
- 170. Model: BAL2059-18, maximum spacing of 6-1/2 inches (165 mm).
  - a. Construction: Round/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
- 171. Model: BAL2059-24, maximum spacing of 6-1/2 inches (165 mm).
  - a. Construction: Round/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
- 172. Model: BAL2059-27, maximum spacing of 6-1/2 inches (165 mm).
  - a. Construction: Round/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
- 173. Model: BAL2060-12, maximum spacing of 7-7/8 inches (200 mm).
  - a. Construction: Square/Smooth reinforced with 2 inch (38 mm) PVC pipe.
- 174. Model: BAL2061-40, maximum spacing of 5-1/2 inches (140 mm).
  - a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
- 175. Model: BAL2062-20, maximum spacing of 5-1/2 inches (140 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 176. Model: BAL2063-27, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 177. Model: BAL2064-35, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 4 inch (102 mm) PVC pipe.
- 178. Model: BAL2065-24, maximum spacing of 6-1/2 inches (165 mm).
  - a. Construction: Round/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 179. Model: BAL2066-22, maximum spacing of 6-11/16 inches (170 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 180. Model: BAL2067-24L, see manufacturer's literature for maximum spacing.
  - a. Construction: Square/Smooth not reinforced
- 181. Model: BAL2067-24R, see manufacturer's literature for maximum spacing.
  - a. Construction: Square/Smooth not reinforced
- 182. Model: BAL2068-20, maximum spacing of 6 inches (152 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 183. Model: BAL2069-28, maximum spacing of 5-7/8 inches (149 mm).

- a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 184. Model: BAL2069-31, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 185. Model: BAL2070-29, maximum spacing of 5-7/8 inches (149 mm).
  - a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
- 186. Model: BAL2071-30, maximum spacing of 7-11/16 7-5/8 inches (195 194 mm).
  - a. Construction: Standard/Smooth reinforced with 2-1/2 inch (63.5 mm) PVC pipe.
- 187. Model: BAL2072-27, maximum spacing of 7-11/16 inches (195 mm).
  - a. Construction: Standard/Smooth reinforced with 2-1/2 inch (63.5 mm) PVC pipe.
- 188. Model: BAL2073-38, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
- 189. Model: BAL2074-20, maximum spacing of 6-3/8 inches (162 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 190. Model: BAL2075-25FS, maximum spacing of 5-1/8 inches (131 mm).
  - a. Construction: Round/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 191. Model: BAL2076-24, maximum spacing of 6-3/16 inches (157 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 192. Model: BAL2077-31, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 2-1/2 inch (63.5 mm) PVC pipe.
- 193. Model: BAL2078-10, maximum spacing of 4-7/8 inches (124 mm).
  - a. Construction: Round/Smooth reinforced with 3/8 inch (10 mm). PVC pipe aluminum pipe.
- 194. Model: BAL2079-20, maximum spacing of 5-5/8 inches (143 mm).
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 195. Model: BAL2080-18, maximum spacing of 5-1/2 inches (140 mm).
  - a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
- 196. Model: BAL2081-20, maximum spacing of 5-15/16 6-15/16 inches (151 mm).
  - a. Construction: Round/Smooth reinforced with 2 inch (38 mm) PVC pipe.
- 197. Model: BAL2082-28, maximum spacing of 7-3/8 inches (187 mm).
  - a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
- 198. Model: BAL2083-22, maximum spacing of 5-7/16 inches (138 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 199. Model: BAL2084-24, maximum spacing of 5-7/16 inches (138 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 200. Model: BAL2085-22, maximum spacing of 6-1/16 inches (154 mm).
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 201. Model: BAL2086-28, maximum spacing of 6-1/8 inches (156 mm).
  - a. Construction: Square/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 202. Model: BAL2087-23 max spacing of 6-3/16 inches (157 mm).
  - a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
- 203. Model: BAL2088-12, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Half Round/Smooth, not reinforced.
- 204. Model: BAL2088-15, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Half Round/Smooth, not reinforced.
- 205. Model: BAL2088-30, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Half Round/Smooth, not reinforced.
- 206. Model: BAL2089-23, maximum spacing of 6-11/16 inches (170 mm).
  - a. Construction: Square/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 207. Model: BAL2090-15, maximum spacing of 5-11/16 inches (144 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.

208. Model: BAL2091-24, maximum spacing of 5-7/16 inches (138 mm).  
a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
209. Model: BAL2092-17, maximum spacing of 4-7/8 inches (124 mm).  
a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
210. Model: BAL2093-25, maximum spacing of 7 inches (178 mm).  
a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
211. Model: BAL2094-21, maximum spacing of 5-3/8 inches (137 mm).  
a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
212. Model: BAL2095-23, maximum spacing of 6-15/16 inches (176 mm).  
a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
213. Model: BAL2096-24, maximum spacing of 5-3/8 inches (137 mm).  
a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
214. Model: BAL2096-24-EXT30, maximum spacing of 5-3/8 inches (137 mm).  
a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
215. Model: BAL2097-33, maximum spacing of 6-3/8 inches (162 mm).  
a. Construction: Square/Smooth reinforced with 3/8 inch (9.5 mm) aluminum pipe.
216. Model: BAL2097-33P, maximum spacing of 6-7/16 inches (164 mm).  
a. Construction: Square/Smooth reinforced with 3/8 inch (9.5 mm) aluminum pipe.
217. Model: BAL2098-26, maximum spacing of 6-1/16 inches (154 mm).  
a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
218. Model: BAL2099-24, **maximum spacing of 7-9/16 inches (192 mm) does not meet 4 inch (102 mm) ball code rule.**  
a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
219. Model: BAL2200-24.5, maximum spacing of 6-7/8 inches (175 mm).  
a. Construction: Round/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
220. Model: BAL2200-28, maximum spacing of 6-7/8 inches (175 mm).  
a. Construction: Round/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
221. Model: BAL2201-24, maximum spacing of 8-11/16 inches (221 mm).  
a. Construction: Standard/Smooth reinforced with 3 inch (76 mm) PVC pipe.
222. Model: BAL2202-19, does not meet 4 inch (102 mm) ball code rule.  
a. Construction: Round/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
223. Model: BAL2203-30, maximum spacing of 5-5/8 inches (143 mm).  
a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
224. Model: BAL2204-24, maximum spacing of 7-1/4 inches (184 mm).  
a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
225. Model: BAL2205-28, maximum spacing of 6-3/4 inches (171 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
226. Model: BAL2206-10, maximum spacing of 4-9/16 inches (116 mm).”  
a. Construction: Standard/Smooth reinforced with 3/8 inch (9.5 mm) aluminum pipe.
227. Model: BAL2207-17, maximum spacing of 6 inches (152 mm)  
a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
228. Model: BAL2208-25, maximum spacing of 6-11/16 inches (170 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
229. Model: BAL2209-21, maximum spacing of 6-1/16 inches (154 mm).  
a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
230. Model: BAL2210-22, maximum spacing of 7-1/2 inches (191 mm).  
a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
231. Model: BAL2211-20, maximum spacing of 6-5/8 inches (168 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
232. Model: BAL2211-24, maximum spacing of 6-5/8 inches (168 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.

233. Model: BAL2212-35, maximum spacing of 8-3/8 inches (213 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
234. Model: BAL2213-19, maximum spacing of 5-1/16 inches (129 mm).  
a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
235. Model: BAL2214-26, maximum spacing of 5-7/16 inches (138 mm).  
a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
236. Model: BAL2215-29.75, maximum spacing of 6-3/8 inches (162 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
237. Model: BAL2216-20, maximum spacing of 6-5/16 inches (160 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
238. Model: BAL2217-28, maximum spacing of 5-5/8 inches (143 mm).  
a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
239. Model: BAL2218-25, maximum spacing of 6-1/8 inches (156 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
240. Model: BAL2219-17, maximum spacing of 5-3/4 inches (146 mm).  
a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
241. Model: BAL2220-28, maximum spacing of 6-7/8 inches (175 mm).  
a. Construction: Square/Smooth reinforced with 2 inch (38 mm) PVC pipe.
242. Model: BAL2221-19, maximum spacing of 6-1/8 inches (156 mm).  
a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
243. Model: BAL2222-30, maximum spacing of 6-1/8 inches (156 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
244. Model: BAL2223-25, does not meet 4 inch (102 mm) ball code rule.  
a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
245. Model: BAL2224-22, maximum spacing of 6-9/16 inches (167 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
246. Model: BAL2224-25, maximum spacing of 6-9/16 inches (167 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
247. Model: BAL2225-24, maximum spacing of 5-3/8 inches (137 mm).  
a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
248. Model: BAL2225-27, maximum spacing of 5-3/8 inches (137 mm).  
a. Construction: Square/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
249. Model: BAL2226-19, maximum spacing of 5-13/16 inches (148 mm).  
a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
250. Model: BAL2227-36, maximum spacing of 6-3/4 inches (171 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
251. Model: BAL2228-11, maximum spacing of 5-1/2 inches (140 mm).  
a. Construction: Standard/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
252. Model: BAL2229-13, maximum spacing of 6-5/8 inches (168 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
253. Model: BAL2230-32, maximum spacing of 6-1/8 inches (156 mm).  
a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
254. Model: BAL2231-23, maximum spacing of 5-5/16 inches (135 mm).  
a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
255. Model: BAL2232-33, maximum spacing of 6-9/16 inches (167 mm).  
a. Construction: Standard/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.

- 256. Model: BAL2233-24, maximum spacing of 7-5/16 inches (186 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 257. Model: BAL2234-18, maximum spacing of 6-5/16 inches (160 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 258. Model: BAL2235-16, maximum spacing of 5-9/16 inches (141 mm).
  - a. Construction: Square/Smooth reinforced with 3/4 inch (19 mm) PVC pipe.
- 259. Model: BAL2236-26, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
- 260. Model: BAL2237-34, maximum spacing of 6-3/4 inches (171 mm).
  - a. Construction: Standard/Smooth reinforced with 1-1/4 inch (32 mm) PVC pipe.
- 261. Model: BAL2238-19, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Half Standard/Smooth reinforced with 3/8 inch (9.5 mm) aluminum pipe.
- 262. Model: BAL2239-45, does not meet 4 inch (102 mm) ball code rule.
  - a. Construction: Standard/Smooth reinforced with 4 inch (102 mm) PVC pipe.
- 263. Model: BAL2240-28, maximum spacing of 8-7/8 inches (225 mm).
  - a. Construction: Standard/Smooth reinforced with 2-1/2 inch (63.5 mm) PVC pipe.
- 264. Model: BAL2241-31, maximum spacing of 6-1/8 inches (156 mm).
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 265. Model: BAL2241-31-EXT39, maximum spacing of 6-1/8 inches (156 mm).
  - a. Construction: Standard/Smooth reinforced with 1 inch (25 mm) PVC pipe.
- 266. Model: BAL2242-23, maximum spacing of 4-7/8 inches (124 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 267. Model: BAL2243-21, maximum spacing of 7-7/16 inches (189 mm).
  - a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
- 268. Model: BAL2244-21. 5 inches (127 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.
- 269. Model: BAL2245-29, maximum spacing of 6-13/16 inches (173 mm).
  - a. Construction: Standard/Smooth reinforced with 2 inch (38 mm) PVC pipe.
- 270. Model: BAL2246-21, maximum spacing of 7-7/8 inches (200 mm).
  - a. Construction: Square/Smooth reinforced with 1-1/2 inches (38 mm) PVC pipe.
- 271. Model: BAL2247-22, maximum spacing of 5-13/16 inches (148 mm).
  - a. Construction: Standard/Smooth reinforced with 1/2 inch (13 mm) aluminum pipe.

## 2.3 RAILINGS

- A. Railings: As manufactured by Spectis Moulders Inc.
  - 1. Models: As indicated on Drawings.
  - 2. Models: As selected by Architect.
  - 3. Model: RAL2100B.
    - a. Details: 4 inch (102 mm) inside diameter PVC pipe.
    - b. Length: As indicated on Drawings.
    - c. Length: As selected by Architect.
    - d. Length: 8 feet (2.4 m).
    - e. Length: 10 feet (3 m).
    - f. Length: 12 feet (3.7 m).
  - 4. Model: RAL2100B-FS.
    - a. Details: 4 inch (102 mm) inside diameter PVC pipe.
    - b. Finish: Fossil stone.
    - c. Length: As indicated on Drawings.
    - d. Length: As selected by Architect.

- e. Length: 8 feet (2.4 m).
  - f. Length: 10 feet (3 m).
  - g. Length: 12 feet (3.7 m).
5. Model: RAL2100T.
- a. Details: 4 inch (102 mm) inside diameter PVC pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).
  - f. Length: 12 feet (3.7 m).
6. Model: RAL2100T-FS.
- a. Details: 4 inch (102 mm) inside diameter PVC pipe.
  - b. Finish: Fossil stone.
  - c. Length: As indicated on Drawings.
  - d. Length: As selected by Architect.
  - e. Length: 8 feet (2.4 m).
  - f. Length: 10 feet (3 m).
  - g. Length: 12 feet (3.7 m).
7. Model: RAL2101B.
- a. Details: Two 4 inch (102 mm) inside diameter PVC pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).
  - f. Length: 12 feet (3.7 m).
8. Model: RAL2101B-10FS.
- a. Length: As indicated on Drawings.
  - b. Length: As selected by Architect.
  - c. Length: 8 feet (2.4 m).
  - d. Length: 10 feet (3 m).
  - e. Length: 12 feet (3.7 m).
9. Model: RAL2101B-12FS.
- a. Length: As indicated on Drawings.
  - b. Length: As selected by Architect.
  - c. Length: 8 feet (2.4 m).
  - d. Length: 10 feet (3 m).
  - e. Length: 12 feet (3.7 m).
10. Model: RAL2101B-8FS.
- a. Length: As indicated on Drawings.
  - b. Length: As selected by Architect.
  - c. Length: 8 feet (2.4 m).
  - d. Length: 10 feet (3 m).
  - e. Length: 12 feet (3.7 m).
11. Model: RAL2101B-FS.
- a. Length: As indicated on Drawings.
  - b. Length: As selected by Architect.
  - c. Length: 8 feet (2.4 m).
  - d. Length: 10 feet (3 m).
  - e. Length: 12 feet (3.7 m).
12. Model: RAL2101T.
- a. Details: Two 4 inch (102 mm) inside diameter PVC pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).

- e. Length: 10 feet (3 m).
- f. Length: 12 feet (3.7 m).
- 13. Model: RAL2101T-10FS.
  - a. Length: As indicated on Drawings.
  - b. Length: As selected by Architect.
  - c. Length: 8 feet (2.4 m).
  - d. Length: 10 feet (3 m).
  - e. Length: 12 feet (3.7 m).
- 14. Model: RAL2101T-12FS.
  - a. Length: As indicated on Drawings.
  - b. Length: As selected by Architect.
  - c. Length: 8 feet (2.4 m).
  - d. Length: 10 feet (3 m).
  - e. Length: 12 feet (3.7 m).
- 15. Model: RAL2101T-8FS.
  - a. Length: As indicated on Drawings.
  - b. Length: As selected by Architect.
  - c. Length: 8 feet (2.4 m).
  - d. Length: 10 feet (3 m).
  - e. Length: 12 feet (3.7 m).
- 16. Model: RAL2101T-FS.
  - a. Length: As indicated on Drawings.
  - b. Length: As selected by Architect.
  - c. Length: 8 feet (2.4 m).
  - d. Length: 10 feet (3 m).
  - e. Length: 12 feet (3.7 m).
- 17. Model: RAL2102B.
  - a. Details: 4 inch (102 mm) inside diameter PVC Pipe.
  - b. Length: 13 feet (4 m)
- 18. Model: RAL2102T.
  - a. Details: 2-7/8 inch (73 mm) inside diameter aluminum pipe.
  - b. Length: 13 feet (4 m)
- 19. Model: RAL2103B, no pipe.
  - a. Length: 12 feet (3.7 m).
- 20. Model: RAL2104B.
  - a. Details: 1-3/4 inch (45 mm) inside diameter aluminum pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).
  - f. Length: 12 feet (3.7 m).
- 21. Model: RAL2104T.
  - a. Details: 1-3/4 inch (45 mm) inside diameter aluminum pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).
  - f. Length: 12 feet (3.7 m).
- 22. Model: RAL2105B.
  - a. Details: 2-3/16 inch (56 mm) inside diameter aluminum pipe.
  - b. Details: 2-3/16 inch (56 mm) inside diameter aluminum pipe
  - c. Length: As indicated on Drawings.
  - d. Length: As selected by Architect.
  - e. Length: 8 feet (2.4 m).

- f. Length: 10 feet (3 m).
  - g. Length: 12 feet (3.7 m).
  - h. Length: As indicated on Drawings.
  - i. Length: As selected by Architect.
  - j. Length: 8 feet (2.4 m).
  - k. Length: 10 feet (3 m).
  - l. Length: 12 feet (3.7 m).
23. Model: RAL2105T.
- a. Details: 2-3/16 inch (56 mm) inside diameter aluminum pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).
  - f. Length: 12 feet (3.7 m).
24. Model: RAL2106T. , no pipe.
- a. Details: No pipe; non-structural.
  - b. Length: 12 feet (3.7 m).
25. Model: RAL2107T.
- a. Details: 2-3/16 inch (56 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
26. Model: RAL2108T-FS.
- a. Details: 1-1/2 inch (39 mm) inside diameter PVC pipe.
  - b. Finish: Fossil stone.
  - c. Length: 105 inches (2.7 m).
27. Model: RAL2109B.
- a. Details: No pipe; non-structural
  - b. Length: 12 feet (3.7 m).
28. Model: RAL2109T.
- a. Details: No pipe; non-structural
  - b. Length: 12 feet (3.7 m).
29. Model: RAL2110B.
- a. Details: 2-3/16 inch (56 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
30. Model: RAL2110T.
- a. Details: 2-3/16 inch (56 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
31. Model: RAL2111B.
- a. Details: 2-7/8 inch (73 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
32. Model: RAL2111T.
- a. Details: 2-7/8 inch (73 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
33. Model: RAL2112T, no pipe.
- a. Length: 12 feet (3.7 m).
34. Model: RAL2113B-S.
- a. Details: 4 inch (102 mm) inside diameter PVC pipe.
  - b. Finish: Stucco stone.
  - c. Length: 12 feet (3.7 m).
35. Model: RAL2113T-S.
- a. Details: 4 inch (102 mm) inside diameter PVC pipe.
  - b. Finish: Stucco stone.
  - c. Length: 12 feet (3.7 m).
36. Model: RAL2114B.
- a. Details: 1 inch (25 mm) inside diameter coated steel pipe.

- b. Length: 12 feet (3.7 m).
- 37. Model: RAL2114T.
  - a. Details: 1 inch (25 mm) inside diameter coated steel pipe.
  - b. Length: 12 feet (3.7 m).
- 38. Model: RAL2115T, no pipe.
  - a. Length: 10 feet (3 m)
- 39. Model: RAL2116T.
  - a. Details: 2-3/16 inch (56 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
- 40. Model: RAL2117T, no pipe.
  - a. Length: As indicated on Drawings.
  - b. Length: As selected by Architect.
  - c. Length: 8 feet (2.4 m).
  - d. Length: 12 feet (3.7 m).
- 41. Model: RAL2118B.
  - a. Details: 3-1/8 inch (79 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
- 42. Model: RAL2118T.
  - a. Details: 3-1/8 inch (79 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
- 43. Model: RAL2119B.
  - a. Details: 3 inch (76 mm) inside diameter aluminum pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).
  - f. Length: 12 feet (3.7 m).
- 44. Model: RAL2119T.
  - a. Details: 3 inch (76 mm) inside diameter aluminum pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).
  - f. Length: 12 feet (3.7 m).
- 45. Model: RAL2120B.
  - a. Details: 1-3/4 inch (45 mm) inside diameter aluminum pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).
  - f. Length: 12 feet (3.7 m).
- 46. Model: RAL2121B.
  - a. Details: 2-3/16 inch (56 mm) inside diameter aluminum pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).
  - f. Length: 12 feet (3.7 m).
- 47. Model: RAL2121T.
  - a. Details: 2-3/16 inch (56 mm) inside diameter aluminum pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).

- f. Length: 12 feet (3.7 m).
- 48. Model: RAL2122B.
  - a. Details: 1 inch (25 mm) inside diameter aluminum pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).
  - f. Length: 12 feet (3.7 m).
- 49. Model: RAL2122T.
  - a. Details: 1 inch (25 mm) inside diameter aluminum pipe.
  - b. Length: As indicated on Drawings.
  - c. Length: As selected by Architect.
  - d. Length: 8 feet (2.4 m).
  - e. Length: 10 feet (3 m).
  - f. Length: 12 feet (3.7 m).
- 50. Model: RAL2123B.
  - a. Details: 2-1/4 inch (57 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
- 51. Model: RAL2123T.
  - a. Details: 2-1/4 inch (57 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
- 52. Model: RAL2124B.
  - a. Details: 4 inch (102 mm) inside diameter aluminum pipe.
  - b. Length: 8 feet (2.4 m)
- 53. Model: RAL2125B.
  - a. Details: 1-3/4 inch (45 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
- 54. Model: RAL2125T.
  - a. Details: 1-3/4 inch (45 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).
- 55. Model: RAL2126T.
  - a. Details: 2 inch (51 mm) inside diameter aluminum pipe.
  - b. Length: 12 feet (3.7 m).

## 2.4 DECORATIVE PANELS

- A. Decorative Panels: As manufactured by Spectis Moulders Inc.
  - 1. Models: As indicated on Drawings.
  - 2. Models: As selected by Architect.
  - 3. Model: RP1536.
  - 4. Model: RP1612.
  - 5. Model: RP2418.
  - 6. Model: RP2424.
  - 7. Model: RP2828.
  - 8. Model: RP3900.
  - 9. Model: RP3901.
  - 10. Model: RP3902.
  - 11. Model: RP3903.
  - 12. Model: RP3904.
  - 13. Model: RP3905.
  - 14. Model: RP3906.
  - 15. Model: RP3907.
  - 16. Model: RP3908.
  - 17. Model: RP3909.

18. Model: RP3910.
19. Model: RP3911.

## 2.5 NEWEL POSTS

- A. Newel Posts: As manufactured by Spectis Moulders Inc.
  1. Styles: In locations and quantities indicated on Drawings.
    - a. Style: S Straight.
    - b. Style: C Corner.
    - c. Style: E End.
    - d. Style: A Angle.
  2. Models: As indicated on Drawings.
  3. Models: As selected by Architect.
  4. Model: NP2200.
  5. Model: NP2200-30.
  6. Model: NP2201.
  7. Model: NP2206.
  8. Model: NP2207.
  9. Model: NP2208FS.
  10. Model: NP2209FS.
  11. Model: NP2209S-FS.
  12. Model: NP2210.
  13. Model: NP2211.
  14. Model: NP2211.
  15. Model: NP2211A.
  16. Model: NP2211FS.
  17. Model: NP2211FSA.
  18. Model: NP2212.
  19. Model: NP2213.
  20. Model: NP2214.
  21. Model: NP2215.
  22. Model: NP2216.
  23. Model: NP2218.
  24. Model: NP2219.
  25. Model: NP2220.
  26. Model: NP2223.
  27. Model: NP2224.
  28. Model: NP2225.
  29. Model: NP2226.
  30. Model: NP2227.
  31. Model: NP2228.
  32. Model: NP2229.
  33. Model: NP2230.
  34. Model: NP2231.
  35. Model: NP2232.
  36. Model: NP2233.
  37. Model: NP2233-42.
  38. Model: NP2233-50.
  39. Model: NP2234.
  40. Model: NP2235.
  41. Model: NP2236.
  42. Model: NP2237.
  43. Model: NP2238.
  44. Model: NP2239.

45. Model: NP2240.

## 2.6 NEWEL CAPS

A. Newel Caps: As manufactured by Spectis Moulders Inc.

1. Models: As indicated on Drawings.
2. Models: As selected by Architect.
3. Model: NC2300.
4. Model: NC2301.
5. Model: NC2302.
6. Model: NC2303.
7. Model: NC2304.
8. Model: NC2305.
9. Model: NC2306.
10. Model: NC2307.
11. Model: NC2308.
12. Model: NC2309.
13. Model: NC2309FS.
14. Model: NC2310.
15. Model: NC2311.
16. Model: NC2312.
17. Model: NC2313.
18. Model: NC2314.
19. Model: NC2315.
20. Model: NC2315FS.
21. Model: NC2316.
22. Model: NC2316FS.
23. Model: NC2317.
24. Model: NC2318.
25. Model: NC2319.
26. Model: NC2320.
27. Model: NC2321.
28. Model: NC2324.
29. Model: NC2325.
30. Model: NC2326.
31. Model: NC2327.
32. Model: NC2328.
33. Model: NC2329.
34. Model: NC2330.
35. Model: NC2331.
36. Model: NC2332.
37. Model: NC2333.
38. Model: NC2334.
39. Model: NC2334FS.
40. Model: NC2335.
41. Model: NC2336.
42. Model: NC2337.
43. Model: NC2337FS.
44. Model: NC2338.
45. Model: NC2339.
46. Model: NC2340.
47. Model: NC2341.
48. Model: NC2342.
49. Model: NC2343.

50. Model: NC2344.
51. Model: NC2345.
52. Model: NC2346.
53. Model: NC2347.
54. Model: NC2348.
55. Model: NC2349CF.
56. Model: NC2350.
57. Model: NC2351.
58. Model: NC2352.
59. Model: NC2353.
60. Model: NC2354.
61. Model: NC2355.
62. Model: NC2356.
63. Model: NC2357.
64. Model: NC2358.
65. Model: NC2359.
66. Model: NC2360.

## 2.7 ACCESSORIES

- A. Adhesive: PL PREMIUM adhesive as manufactured by Spectis Moulders Inc. for bedding and butt joints.
  
- B. Accessories: As manufactured by Spectis Moulders Inc.
  1. Models: As indicated on Drawings.
  2. Models: As selected by Architect.
  3. Model: AC1416.
  4. Model: AC 49F.
  5. Model: AC 49H.
  6. Model: AC 611F.
  7. Model: AC 611H.
  8. Model: AC 49H.
  9. Model: AC 100.
  10. Model: BA 4KN.
  11. Model: BA 3.
  12. Model: BA 5.
  13. Model: BA 6.
  14. Model: BA 7.
  15. Model: BA 9.
  16. Model: BA 10.
  17. Model: BA 12.
  18. Model: BA 8L.
  19. Model: BA 12.5, 2 parts.
  20. Model: BA 18/BB 10, 2 parts.
  21. Model: BA 24/BB 20, 2 parts.
  22. Model: BA 8NB, no base.
  23. Model: BA 18NB, no base.
  24. Model: BA 7KN.
  25. Model: BA 8WB, with base.
  26. Model: PT 01.
  27. Model: PF 11F.
  28. Model: PF 14F.
  29. Model: PF 103F.
  30. Model: PF 14H.

31. Model: PF 103H.
32. Model: PF 11H.
33. Model: PT 02.

C. Finishing Accessories:

1. Accessories: As indicated on Drawings.
2. Accessories: As selected by Architect.
3. Primer: Sherwin Williams A100 or PrepRite Classic Interior Latex Primer.
4. Paint: Sherwin Williams A100 or SuperPaint.
5. PreCleaner: Sherwin Williams Pro Clean Professional.
6. Caulking: Sherwin Williams ProSelect 1100A.
7. Deco Flex: Sherwin Williams SuperPaint.
8. Lightweight Automotive Filler: Car Systems AutoFit, Eurosoft # CARS134458.

## 2.8 HARDWARE

A. Newel Post Hardware: As manufactured by Spectis Moulders Inc. Quantities listed are per unit ordered.

1. Models: As indicated on Drawings.
2. Models: As selected by Architect.
3. Model: KIN 01-C; one 1/2 inch (13 mm) concrete anchor, one 8 inch (203 mm) C-channel, one 52 inch (1321mm) x 1/2 inch (13 mm) threaded rod.
4. Model: KIN 01-W; one floor flange, one 8 inch (203 mm) C-channel, four #14 x 2 inch (51mm) wood screws, one 52 inch (1321mm) x 1/2 inch (13 mm) threaded rod.
5. Model: KIN 02-C; one 1/2 inch (13 mm) concrete anchor, one 4-1/4 inch (108 mm) C-channel, one 52 (1321mm) inch (1321mm) x 1/2 inch (13 mm) threaded rod.
6. Model: KIN 02-W; one floor flange, one 4-1/4 inch (108 mm) C-channel, four #14 x 2 inch (51mm) wood screws, one 52 inch (1321mm) x 1/2 inch (13 mm) threaded rod.
7. Model: KIN 03-C; one 1/2 inch (13 mm) concrete anchor, one 5-1/4 inch (133 mm) C-channel, one 52 (1321mm) inch x 1/2 inch (13 mm) threaded rod.
8. Model: KIN 03-W; one floor flange, one 5-1/4 inch (133 mm) C-channel, four #14 x 2 inch (51mm) wood screws, one 52 (1321mm) inch x 1/2 inch (13 mm) threaded rod.
9. Model: KIN 04-C; one 1/2 inch (13 mm) concrete anchor, one 7-1/2 inch (191 mm) C-channel, one 52 (1321mm) inch x 1/2 inch (13 mm) threaded rod.
10. Model: KIN 04-W; one floor flange, one 7-1/2 inch (191 mm) C-channel, four #14 x 2 inch (51mm) wood screws, one 52 (1321mm) inch x 1/2 inch (13 mm) threaded rod.
11. Model: KIN 05-C; two 1/2 inch (13 mm) concrete anchors, two 17-1/2 inch (445 mm) C-channels, two 34 inch (864 mm) x 1/2 inch (13 mm) threaded rods
12. Model: KIN 05-W; two floor flanges, two 17-1/2 inch (445 mm) C-channels, four #14 x 2 inch (51mm) wood screws, two 34 inch (864 mm) x 1/2 inch (13 mm) threaded rods
13. Model: KIN 06-C; one 1/2 inch (13 mm) concrete anchor, one 6-1/2 inches (165 mm). C-channel, one 52 (1321mm) inch x 1/2 inch (13 mm) threaded rod.
14. Model: KIN 06-W; one floor flange, one 6-1/2 inches (165 mm). C-channel, four #14 x 2 inch (51mm) wood screws, one 52 (1321mm) inch x 1/2 inch (13 mm) threaded rod.

B. Railing Hardware: As manufactured by Spectis Moulders Inc.

1. Models: As indicated on Drawings.
2. Models: As selected by Architect.
3. Model: KIR 01; four 4-1/4 inch (108mm) prepunched aluminum brackets, four 5/16 inch (8mm) x 2-1/2 inch (64mm) bolts with nuts
4. and lock washers, sixteen #14 x 2 inch (51mm) wood screws.
5. Model: KIR 02; four 2-1/5 inch (64mm) prepunched aluminum brackets, four 5/16 inch (8mm) x 2-1/2 inch (64mm) bolts with nuts and lock washers, four #14 x 2 inch (51mm) wood screws.

6. Model: KIR 03; four 4-1/4 inch (64mm) prepunched aluminum brackets, four 5/16 inch (8mm) x 2-1/2 inch (64mm) bolts with nuts and lock washers, four #14 x 2 inch (51mm) wood screws.
- C. Railing Support Blocks: As manufactured by Spectis Moulders Inc.
1. Models: As indicated on Drawings.
  2. Models: As selected by Architect.
  3. Model: SUP 01, for RAL 2104.
  4. Model: SUP 02, for RAL 2104.
  5. Model: SUP 03, for RAL 2102 or RAL 2105.
  6. Model: SUP 04, for RAL 2105 or RAL 2102.
  7. Model: SUP 05, for RAL 2100 or RAL 2103.
  8. Model: SUP 06, for RAL 2103 or RAL 2100.
  9. Model: SUP 07, for RAL 2101.
  10. Model: SUP 08, for RAL 2101.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Inspect conditions of substrate and other conditions which may affect installation of signage.
- B. Do not begin installation until substrates are within manufacturer's specified tolerances and have been prepared in accordance with manufacturer's instructions.
- C. If substrate preparation is the responsibility of another installer, do not proceed with installation. Notify Architect of unsatisfactory preparation immediately.
- D. Commencement of work is deemed as acceptance of installation conditions.

### 3.2 INSTALLATION

- A. Determine Location Of Newels:
  1. Before any work can begin, determine exact layout of railing.
  2. When determining layout, use 12 feet (3.7 m) as a maximum railing length and keep all railing lengths on a run equal.
  3. Mark center locations of all newel posts.
- B. Install Top Angle Brackets to Newels:
  1. Before installing newels, install top angle brackets to each newel post; bottom brackets are fastened to the bottom rails.
  2. Measure the combined heights of bottom rail and baluster; this is the distance between angle brackets used to fasten railings to newels. Call this total measurement "X" inches.
  3. Determine and mark on newel post the height, which bottom rail will be located off the deck. This will be the location of bottom rail bracket.
  4. Offset top rail bracket "X" inches from the bottom bracket, mark and pre-drill a hole in the newel post for center bracket hole.
  5. Install top bracket at location determined above using a bolt through center hole of angle bracket. Use adhesive between bracket and newel.
  6. Install wood screws through the 2 outboard holes in the bracket, if present.
  7. Mortise top railing bracket into newel posts.

- C. Installing Newel posts To Wood Decking
1. Install blocking beneath the center of each newel post as indicated on Drawings, fastening with screws or nails to deck joists.
    - a. Minimum Requirement: Nominal 2 inches by 6 inches CCA treated Southern Pine.
  2. Center floor flange on top of center-mark of post location and secure to decking and blocking with 3 inch (76 mm) lag screws.
  3. Thread 1/2 inch (13 mm) rod into welded nut on floor flange and tighten with vise grips.
- D. Installing Newel posts To Concrete:
1. Drill 5/8 inch (16 mm) hole to minimum depth of 2-1/4 inches (57 mm) at marked center positions of newels.
  2. Clear and insert anchors into holes, tapping anchor in until flush with surface of concrete. Using a setting pin (metal pin or punch) strike with sharp blows until anchors are set.
  3. Thread rod into anchor and tighten with vise grips.
- E. Securing Newel Post:
1. Place newel post over threaded rod and insert "C" channel (open side up) into mortised slot in the top of the newel post. Use PL Premium between base of newel and deck material.
  2. Install lock washer and nut on to threaded rod.
  3. Orient newel post to final position and tighten up nut.
  4. Cut excess threaded rod using reciprocating saw or cut off disk. Rod can be no higher than top of newel.
- F. Determine and Cut Railing Lengths:
1. With the newel post installed, measure spans between each set of newel posts and cut top/bottom rail sections to suit.
  2. Label each set of rails to their corresponding location.
- G. Determine Balustrade Spacing and Drill Holes:
1. Prior to drilling holes, check with local building code authorities for minimum spacing of balusters. Most building codes dictate that the balustrade must be installed in accordance of the 4 inch ball rule.
  2. The maximum spacing of balusters which comply with the 4 inch ball rule can be found in the manufacturer's literature or on manufacturer's website.
  3. With the maximum spacing as a guideline, determine the best configuration of balusters, which provides for both consistent end and balustrade spacing. Vary spacing slightly between sections to achieve good results.
  4. Drill holes in centerline of railings at locations determined above. Drill holes 1/4 inch (6 mm) larger than the pipe in balusters. Holes need to be 1 inch (25 mm) deep to accommodate pipe.
- H. **Pre-Assemble** **Assembling** Railing Sections:
1. For complete details follow "Installation of Balustrade Systems" in Spectis Volume 6 catalogue or online instruction at [www.spectis.com](http://www.spectis.com).
  2. Place bottom rail on flat surface and apply adhesive around each hole drilled above.
  3. Insert balusters in holes, twisting slightly to seat the adhesive.
  4. Apply adhesive around the tops of each baluster.
  5. Place top rail over ends of balusters, indexing each into the corresponding holes in top rail. Assistance will be needed to do this.
  6. With all the baluster installed, loosely clamp the assembly together using load binding straps.

7. Once the assembly is loosely clamped, orient each baluster so it is sitting squarely and the spaces between each are consistent. Using a spacer block as a guide is helpful.
  8. To ensure the balusters do not move while the adhesive cures, toe nail each into the bottom and/or top rail with brad nails. Tighten up clamps.
  9. Set the entire assembly aside for 24 hours while the adhesive cures.
  10. Complete this procedure for the rest of the railing sections.
- I. Install Support Blocks to Bottom Rails: For spans over 96 inches (2438 mm) for compliance.
1. Cut support blocks to the same height the bottom rail is to be located off the deck.
  2. Apply adhesive to the topside of support block and screw from the bottom side into the bottom rail.
- J. Install Bottom Rail Support Bracket:
1. The bottom rail brackets are installed on the end of the bottom rail prior to setting the railing assembly into place due to space limitations.
  2. Locate the bracket on the end of the underside of the bottom rail.
  3. Install the bottom bracket (using adhesive) using the 5/16 inch (8 mm) bolts supplied in the hardware kit.
  4. Mark and pre-drill a 5/16 inch (8 mm) hole in the end of the rail.
  5. Notch the underside of top rail to accommodate the fastening bracket hardware.
- K. Install Railing Sections:
1. Apply adhesive to the ends of the railings.
  2. With assistance, place each entire railing assembly between the corresponding newel posts and rest on the top rail brackets previously installed. Use adhesive between brackets, railing, and newels.
  3. Center the railing section in place and using 2 inch (51 mm) wood screws; secure the top rail by screwing from beneath and into the bottom of the top rail.
  4. Secure the bottom rail by screwing from the side into the newel post using 2 inch (51 mm) wood screws. Ensure the ends of the rail are tight to the newels before fastening.
- L. Install Newel Caps:
1. Apply adhesive to tops of newels posts.
  2. Center newel caps on posts and secure using brad nails.

### 3.3 FINISHING

- A. Allow adhesive to dry 24-48 hours before beginning the finishing procedure. Cut off any excess adhesive using a utility knife.
- B. Clean and remove all dirt, oil and greases from surface of product using a wax and grease remover product such as Sherwin-Williams Pro-Clean Professional.
- C. With 80 grit sandpaper, "rough up" surface surrounding screw or nail holes made during installation to ensure good filler adhesion. Sand all joint areas with 80 grit sandpaper to "rough up" and "blend in" any misalignment of product during installation.
- D. Once all areas needing repair are "roughed up" and "blended in", remove all dust from the surface of the product, again using the wax and grease remover.
1. Use compressed air to remove the excess sanding dust.
- E. Apply filler to the areas needing repair. Use a 2- component, light weight automotive filler, such as "Car Systems AutoFit, Eurosoft # CARS134458." Apply the filler using thin coats,

sanding between each coat with 120 or 180 grit sandpaper. Apply minimum of 2 coats of filler to get the results detailed in manufacturer's literature.

- F. Prime all areas which have had filler applied. Use an interior/exterior latex primer such as Sherwin-Williams A100.
- G. Caulk seams along bedding edges of moulding, around balusters, and in any other area necessary to provide a clean installation. Use an exterior, paintable exterior Latex caulking such as Sherwin-Williams ProSelect 1100A.
- H. Paint the product in color specified by Architect. Dark or glossy colors are not recommended as they will accentuate any flaws left during the installation. Manufacturer recommends product such as Sherwin Williams Interior/Exterior A100 or SuperPaint, flat or satin.

### 3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION