

**SECTION 32 31 19  
DECORATIVE METAL FENCES AND GATES**

SPEC WRITER NOTE: Use this section only  
for NCA projects. Delete text between  
// \_\_\_\_\_ // not applicable to project.  
Edit remaining text to suit project.

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
1. Decorative fence system at location indicated on Drawings.
  2. Decorative fence gates at location indicated on Drawings.

**1.2 RELATED REQUIREMENTS**

SPEC WRITER NOTE: Update and retain  
references only when specified elsewhere  
in this section.

- A. Materials product data and samples: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Product Finish and Color: Section 09 06 00 SCHEDULE FOR FINISHES.
- C. Concrete Footing: Section 03 30 00: CAST-IN-PLACE-CONCRETE.
- D. Footing Excavation: Section 31 20 00: EARTH MOVING.

**1.3 APPLICABLE PUBLICATIONS**

- A. Comply with references to extent specified in this section.
- B. American Institute of Steel Construction (AISC):
  1. ASCE/SEI 7-10 Minimum Design Loads for Buildings and Other Structures.
- C. ASTM International (ASTM):
  1. B221-12 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
- D. American Welding Society (AWS):
  1. D1.2/D1.2M-14 - Structural Welding Code - Aluminum.
- E. Master Painters Institute (MPI):
  1. No. 18 - Primer, Zinc Rich, Organic.

**1.4 SUBMITTAL**

- A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES:
- B. Submittal Drawings:
  1. Show size, configuration, and fabrication and installation details.

- C. Manufacturer's Literature and Data:
  - 1. Description of each product.
    - a. Point by point comparison of proposed "Equal" products.
  - 2. Grommets indicating manufacturer recommendation for each application.
  - 3. Installation instructions.
  - 4. Warranty.
- D. Samples:
  - 1. Fence Material: 12 inches // long // square //, each type and color //.
    - a. Submit quantity required to show full color // and texture // range.
  - 2. // Product //: Full sized, complete assembly.
  - 3. Approved samples may be incorporated into work.
- E. Certificates: Certify // each product complies // products comply // with specifications.
- F. Qualifications: Substantiate qualifications comply with specifications.
  - 1. Manufacturer // with project experience list //.
  - 2. Fabricator // with project experience list //.
  - 3. Installer // with project experience list //.
  - 4. Welders and welding procedures.
- G. Delegated Design Drawings and Calculations: Signed and sealed by responsible design professional.
  - 1. Show location and magnitude of loads applied to building structural frame.
  - 2. Identify deviations from details shown on drawings.

### 1.5 QUALITY ASSURANCE

- A. Manufacturer, Fabricator, Installer Qualifications:
  - 1. Regularly manufactures, fabricates, and installs specified products.
  - 2. Manufactured, Fabricated, and Installed specified products with satisfactory service on five similar installations for minimum five years.
    - a. // Project Experience List: Provide contact names and addresses for completed projects. //
    - b. // Provide photographs, drawings and other documents showing character and quality of completed installation //.
- B. Installer Qualifications: // Product manufacturer. // Manufacturer authorized representative //.

1. Regularly installs specified products.
2. Installed specified products with satisfactory service on five similar installations for minimum five years.
  - a. // Project Experience List: Provide contact names and addresses for completed projects. //
  - b. // Provide photographs, drawings and other documents showing character and quality of completed installation //.
- C. Welders and Welding Procedures Qualifications: // AWS D1.1/D1.1M. // AWS D1.2/D1.2M // AWS D1.3/D1.3M. //
- D. Delegated Design: Comply with system performance.

**1.6 DELIVERY**

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, // color, // production run number, and manufacture date.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

**1.7 STORAGE AND HANDLING**

- A. Protect products from damage during handling and construction operations.

**1.8 WARRANTY**

SPEC WRITER NOTE: Always retain construction warranty. FAR includes Contractor's one year labor and material warranty.

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

SPEC WRITER NOTE: Specify extended manufacturer's warranties for materials only.

- B. Manufacturer's Warranty: Warrant decorative fences and gates against material and manufacturing defects.

SPEC WRITER NOTE: Specify customarily available warranty period for specified products.

1. Warranty Period: // number // years.

**PART 2 - PRODUCTS****2.1 SYSTEM DESCRIPTION**

- A. Industrial Decorative aluminum fence and gate system with concealed picket attachment.

**2.2 SYSTEM PERFORMANCE**

- A. Delegated Design: Prepare submittal documents including design calculations and drawings signed and sealed by registered design professional, licensed in state where work is located.
  - 1. Minor deviations to details shown on drawings to accommodate manufacturer's standard products may be accepted by Contracting Officer's Representative (COR) when deviations do not affect design concept and specified performance.
- B. Design framework complying with specified performance:
  - 1. Load Resistance: ASCE/SEI 7; Design criteria as indicated on Drawings // when tested according to ASTM E330/E330M //.

SPEC WRITER NOTE: Specify actual loads  
when known for project.

- a. Wind Load: // \_\_\_\_\_ // positive, // \_\_\_\_\_ // negative, minimum.
- C. Completed panels capable of supporting 135 kg (300 lb.) load (applied at midspan) without permanent deformation, 25 percent inclination change in grade.

**2.3 PRODUCTS - GENERAL**

- A. Basis of Design: Section 09 06 00, SCHEDULE FOR FINISHES.
- B. Provide decorative fence and gates from one manufacturer // and from one production run //.
- C. DECORATIVE FENCE SYSTEM.
  - 1. Framework: ASTM B221 extruded aluminum, alloy 6005-T5 for posts and rails (outer channels); alloy 6063-T5 for pickets and rail inner slide channels.
  - 2. Picket Fence: Extruded aluminum, 25mm (1 inch) square by 1.5 mm (0.062") thick.
  - 3. Rails: Extruded aluminum, 44mm (1.75 inch) square, 2.5mm (0.100 inch) thick top, 3mm (0.120 inch) thick sidewalls, 2mm (0.080 inch) thick inner side channel, and holes at 118mm (4.715 inch) o.c. to receive picket; seal with PVC grommets.

4. Retaining Rod: Galvanized steel, 3mm (0.125 inch).
5. Posts: Extruded aluminum, minimum 62.5mm (2-1/2 inch) square tube, 2mm (0.0800) thick, 2mm (0.080 inch) thick interior reinforcing web.
6. Gates: Extruded aluminum, 45mm (1.75 inch) sq., 45mm (1.75 inch sq.) x 6mm (.250 inch) gate ends, and 25mm (1 inch) sq. x 3mm (.125 inch) pickets.
  - a. Hardware: Manufacturer's standard.
7. Fasteners: Stainless steel.
  - a. Rail Attachment Bracket: One-way tamperproof security bolts with inverted "T-nuts".
  - b. Post Connections Bracket: Self-drilling hex-head screws.
8. Rings, Post Caps, Finials, and Miscellaneous adornments: Cast aluminum.

#### **2.4 FABRICATION**

- A. Pre-cut pickets, rails, and posts in lengths indicated on Drawings. Pre-punch manufacturer's concealed design system rails to accept pickets.
- B. Fully insert rail inner slide into outer channel for internal retaining rod raceway.
- C. Insert pickets through grommets into pre-punched holes in rails; align pre-drilled picket holes with internal raceway.
- D. Insert retaining rods in rail passing through pre-drilled holes in each picket.
- E. Fabricate gates of reinforced concealed design system, picket and rails welded at joint intersections.

#### **2.5 FINISHES**

- A. Aluminum Paint finish:
  1. Baked-Enamel or Powder-Coat Finish: Polyester powder coating, 0.0508 mm (2 mils) minimum thickness. Comply with manufacturer's coating process.
    - a. Color: // Black // Bronze // Refer to Section 09 06 00, SCHEDULE FOR FINISHES //.

#### **2.6 ACCESSORIES**

- A. Grommets: PVC, High quality.
- B. Primer: Manufacturer's spray cans or paint pens.
- C. Welding Materials: AWS D1.2/D1.2M, type to suit application.
- D. Fasteners: As recommended by manufacturer.

- E. Galvanizing Repair Paint: MPI No. 18.
- F. Touch-Up Paint: Match shop finish.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Examine and verify substrate suitability for product installation.
- B. Correct substrate deficiencies.
  - 1. Fill.
  - 2. Grind.
  - 3. Level.

#### **3.2 FENCE INSTALLATION**

- A. Layout fence // symmetrically, // with minimum number of joints.
- B. Installation:
  - 1. Install fence and gates according to manufacturer's instructions.

SPEC WRITER NOTE: In some cases, local  
restrictions of freezing weather  
conditions may require a greater depth.

- 2. Set posts in concrete footers minimum 900mm (36 inches) depth, or as indicated on Drawings, whichever is greater.
- 3. Earthwork: As specified in Section 31 20 00 Earth Moving.
- 4. Concrete: As specified in Section 03 30 00 Cast-in-Place Concrete.
- 5. Posts setting by other methods as plated posts or grouted core-drilled footers are permissible only when shown in engineering analysis of sufficient in strength for intended application.
- C. Installation Tolerances:
  - 1. Variation from Indicated Grade: Maximum // \_\_\_\_\_ // mm  
(// \_\_\_\_\_ // inches).
  - 2. Variation from Indicated Line: Maximum // \_\_\_\_\_ // mm  
(// \_\_\_\_\_ // inches).
- D. Touch up damaged factory finishes.
  - 1. Repair galvanized surfaces with galvanized repair paint.
  - 2. Repair painted surfaces with touch up primer.

#### **3.3 FENCE INSTALLATION MAINTENANCE**

- A. Seal expose surfaces when cutting or drilling rails or posts as follows:
  - 1. Remove metal shavings from cut area.

SPEC WRITER NOTE: Paint pen is recommended to prevent overspray.

2. Apply custom finish paint to match fence color. Prime and finish exposed surfaces with manufacturer's spray cans or paint pens.

**3.4 GATE INSTALLATION**

- A. Install gates according to manufacturer's instructions.
- B. Set posts plumb, in concrete footings as indicated on Drawings.

**3.5 CLEANING**

- A. Clean exposed surfaces. Remove contaminants and stains.
- B. Clean site of excess materials, post-hole excavations, and debris removed or scattered uniformly.

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