

# SECTION 02821 MIW Ornamental Fence

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Ornamental picket fencing and accessories.

**1.02 RELATED SECTIONS**

- A. Section 02500 - Paving and Surfacing.
- B. Section 03300 - Cast in Place Concrete.
- C. Section 04200 - Unit Masonry.

**1.03 SUBMITTALS:**

- A. Changes in specification may not be made after the bid date.
- B. Shop Drawings: Layout of fence and gates with dimensions, details and finishes of components, accessories and post foundations.
- C. Product Data: Manufacturer's catalogue cuts indicating material compliance and specified options.
- D. Samples: Color selections for polyester finishes. If requested, samples of materials, (e.g. finials, caps, and accessories).

**1.04 SPECIAL WARRANTY**

- A. Provide manufacturer's standard limited warranty that its ornamental fence system is free from defects in material and workmanship including cracking, peeling, blistering and corroding for a period of **15 years** from the date of purchase.

**PART 2 PRODUCTS**

**2.01 MANUFACTURER**

- A. Monumental Iron Works  
 Products from other qualified manufacturers having a minimum of 5 years experience manufacturing ornamental picket fencing will be acceptable by the architect as equal, if **approved in writing, ten days prior to bidding**, and if they meet the following specifications for design, size, gauge of metal parts and fabrication.

B. Ornamental Picket Fence Style:

- |                                     |   |  |                                     |                                   |                                   |
|-------------------------------------|---|--|-------------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> Estate A   | <input type="checkbox"/> Estate B       | <input type="checkbox"/> Estate F            | <input type="checkbox"/> Estate G   | <input type="checkbox"/> Estate K | <input type="checkbox"/> Estate L |
| <input type="checkbox"/> Imperial A | <input type="checkbox"/> Imperial B     | <input type="checkbox"/> Imperial D Modified | <input type="checkbox"/> Imperial E |                                   |                                   |
| <input type="checkbox"/> Fortifier  | <input type="checkbox"/> Fortifier Plus | <input type="checkbox"/> _____               |                                     |                                   |                                   |

Panel Height

- |                             |                             |                             |                             |                             |                                |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------------------|
| <input type="checkbox"/> 4' | <input type="checkbox"/> 5' | <input type="checkbox"/> 6' | <input type="checkbox"/> 7' | <input type="checkbox"/> 8' | <input type="checkbox"/> _____ |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------------------|

- C. Approved Manufacturer: Monumental Iron Works/Master Halco Inc., Dallas, Texas  
 Phone: (800) 883-8384 Website: www.MasterHalco.com

**2.02 ORNAMENTAL PICKET FENCE**

- A. Pickets: Galvanized square steel tubular members manufactured per ASTM A-787-G90, having a 50,000 psi (310 MPa) yield strength and G90 zinc coating, 0.90 oz/ft<sup>2</sup> (0.27 kg/M<sup>2</sup>). Pickets are 4" maximum (101.6 mm) face to face. Attach each picket to each rail with 1/4" (6 mm) industrial drive rivets, size #4.

	<input type="checkbox"/> 3/4" sq (1.905 cm)	<input type="checkbox"/> 3/4" sq (1.905 cm)	<input type="checkbox"/> 1" sq (2.54 cm)	<input type="checkbox"/> 1" sq (2.54 cm)	<input type="checkbox"/> 1" sq (2.54 cm)
Thickness	16ga (.065")	18ga (.047")	14ga (.083")	16ga (.065")	18ga (.047")
Wgt/ft. (lbs)	0.609	0.467	1.035	0.827	0.634

- B. Rails: Galvanized steel "U" channel per ASTM A-653 or ASTM A-607, having a 50,000 psi (344 MPa) yield strength and G90 zinc coating, 0.90 oz/ft<sup>2</sup> (0.27 kg/M<sup>2</sup>). Punch rails to receive pickets and rivets and attach rails to rail brackets with 2 each, 1/4" (6 mm) industrial drive rivets, size #4.

	<input type="checkbox"/> 1-3/8" x 1-1/2"	<input type="checkbox"/> 1-3/8" x 1-1/2"
	(3.49 x 3.18 cm)	(3.49 x 3.18 cm)
Thickness	14ga (.083")	11ga (.120")
Wgt/ft. (lbs)	1.134	1.482

- C. Posts: Galvanized square steel tubular members manufactured per ASTM A-787-G90 having a 50,000 psi (310 MPa) yield strength and G90 zinc coating, 0.90 oz/ft<sup>2</sup>. Zinc coating is inside and outside. Posts zinc coated outside and painted inside is unacceptable.

	<input type="checkbox"/> 2-1/2" (6.35 cm)	<input type="checkbox"/> 2-1/2" (6.35 cm)	<input type="checkbox"/> 3" (7.62 cm)	<input type="checkbox"/> 4" (10.16 cm)
Thickness	14ga (.083")	12ga (.105")	12ga (.105")	12ga (.105")
Wgt/ft. (lbs)	2.728	3.420	4.134	5.562

- D. Rail Brackets: Pro-Arc Rail Brackets (see section 2.04 A). Assembled panels with ornamental accessories attached using industrial drive rivets or alternative tamper proof hardware to prevent removal and vandalism.
- E. Finish: All pickets, channels, posts, fittings and accessories shall be Super Durable High Performance Finish, individually after drilling and layout, to ensure maximum corrosion protection. (Coating of assembled sections is unacceptable). All primary components receive a thorough cleaning and pre-treatment (an iron phosphate pre-treatment to promote adhesion and non-chromate conversion coating to seal the surface and provide additional corrosion protection. All metal is given a super durable high performance polyester powder coating applied by the electrostatic spray process, to a thickness of 3mils (.0762 mm). The finish is baked at 400°F (204°C) until cured.

**2.03 GATES**

- A. Ornamental picket swing gates as specified in Section 02821 A.
- B. Ornamental picket cantilever slide gates as specified in Section 028321 B.

**2.04 ACCESSORIES**

- A. Rail Attachment Brackets: Die cast of zinc (ZAMAK #3 Alloy) per ASTM B86-83Z 33521. Ball and socket design capable of 30° swivel (up/down - left/right). Bracket to fully encapsulate rail end for complete security. (no substitution.)
- B. Industrial Drive Rivets: Of sufficient length to attach items in a secure no rattling position. Rivet to have a minimum of 1100 lbs. (4894 N) holding power and a shear strength of 1500 lbs. (6673 N).
- C. Ornamental Picket Fence Accessories: Provide indicated items required to complete fence system. Galvanize each ferrous metal item in accordance with ASTM B695 and finish to match framing.
- D. Post Caps: Formed steel, cast of malleable iron or aluminum alloy, weather-tight closure cap.

Flat       Ball

- E. Rings: Cast aluminum. Attach ring to top rail by inserting mounting blocks into top rail and riveting through side of rail using 1/4" (6 mm) industrial drive rivet. Hold bottom of ring in place by dowel that protrudes from ring through predrilled hole in bottom rail.
- F. Picket Tops:
  - \_\_\_\_\_ Pressed steel point.
  - \_\_\_\_\_ Standard fortifier - (1" pickets only)
  - \_\_\_\_\_ Fortifier plus - (1" pickets only)
  - \_\_\_\_\_ Flat top with polymer plug.
  - \_\_\_\_\_ Finial tops, cast aluminum, attached to pickets by 1/4" (6mm) rivet or set screws. All finials extend 6" (150 mm) above rail.
  - Triad       Quad
  - \_\_\_\_\_ Imperial top (pickets terminate inside of rail).
  - \_\_\_\_\_

**2.05 SETTING MATERIAL**

- A. Concrete: Minimum 28 day compressive strength of 3000 psi (20 MPa).
- B. Flanged Posts: Provide flange type base plates with 4 holes for surface mounting of posts where indicated.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify areas to receive fencing are completed to final grades and elevations.
- B. Ensure property lines and legal boundaries of work are clearly established.

**3.02 INSTALLATION**

- A. Install fence in accordance with manufacturer's instructions.
- B. Space posts uniformly at 7'10-1/4" (2394 mm) maximum face to face unless otherwise indicated.
- C. Concrete Set Posts: Drill hole in firm, undisturbed or compacted soil. Holes shall have diameter 4 times greater than nominal outside dimension of post, and depths approximately 6" (152 mm) deeper than post bottom. Excavate deeper as required for adequate support in soft and loose soils, and for posts with heavy lateral loads. Set post bottom 36" (914 mm) below surface when in firm, undisturbed soil. Place concrete around post in a continuous pour. Trowel finish around posts and slope to direct water away from posts.
  - 1. Gate Posts and Hardware: Set keepers, stops, sleeves and other accessories into concrete.
- D. Surface mount (wall mount) posts with mounting plates where indicated. Fasten with lag bolts and shields.
- E. Check each post for vertical and top alignment, and maintain in position during placement and finishing operation.
- F. Align fence panels between posts. Firmly attach rail brackets to posts with 1/4" (6 mm) bolt and lock nut, ensuring panels and posts remain plumb.

**3.03 GATE INSTALLATION**

- A. Install gates plumb, level and secure for full opening without interference.
- B. Attach hardware by means which will prevent unauthorized removal.
- C. Adjust hardware for smooth operation.

**3.04 ACCESSORIES**

- A. Install post caps and other accessories to complete fence.

**3.05 CLEANING**

- A. Clean up debris and unused material, and remove from site.