
**SECTION 02930
CEDAR FENCE**

PART I: GENERAL

1.1 GENERAL REQUIREMENTS

- A. Furnishing and installation of cedar picket fencing, galvanized steel posts, and gates plus all accessories incidentals and specials necessary for the proper erection and installation of the fence and gates.
- B. The Contractor shall construct cedar picket fencing including posts, and gates as shown on the Drawings and in accordance with this Specification.

1.2 MEASUREMENT AND PAYMENT

- A. Unit Prices:
 - 1. Payment for Cedar Fence shall be on a per linear foot basis to include all necessary hardware, concrete, materials and labor.
 - 2. No separate payment shall be made for each gate. Gates shall be paid under Cedar Fence as part of the linear footage.
 - 3. Refer to Section 01270 – Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum):
 - 1. If Contract is Stipulated Price Contract, payment for work in this Section is included in Total Stipulated Price.

1.3 REFERENCES

- A. ASTM – American Society for Testing and Materials.
 - 1. ASTM A123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- B. CTFS – City of Friendswood Specifications.

1.4 SUBMITTALS

- A. Conform to requirements of Section 01330 – Submittal Procedures.
- B. Submit proposed design mix and test data for each type and strength of concrete.
- C. Submit manufacturer's data and details of following items for approval:
 - 1. Cedar Fence Pickets.
 - 2. Galvanized Posts.
 - 3. Timber Rails.
 - 4. Materials to be used for installation.
 - 5. Latch and hinge hardware.
 - 6. Installation instructions for forms.

PART II: PRODUCTS

2.1 STYLE OF FENCE

- A. The fence shall be eight feet (8 Ft) in overall height consisting of blunt cedar pickets attached to three (3) horizontal wooden rails on galvanized steel posts.

2.2 TERMINAL POSTS

- A. End, corner and intermediate brace posts shall be hot dipped galvanized three inch (3 In) O.D. schedule 40 steel pipe set in concrete in a twelve inch (12 In) hole not less than thirty-nine inches (39 In) deep.
- B. Intermediate posts shall be evenly spaced on centers between end and/or corner posts with a maximum spacing of seventy-five feet (75 Ft).

2.3 LINE POSTS

- A. Line posts shall be hot dipped galvanized two and three-eighths inch (2-3/8 In) O.D. diameter schedule 40 steel pipe evenly spaced on centers not to exceed ten feet (10 Ft).
- B. Posts shall be set in concrete in a twelve (12) inch diameter hole not less than thirty-three inches (33 In) deep.

2.4 GATE POSTS

- A. Gate posts shall be hot dipped galvanized, schedule 40 steel pipe, set in concrete in a hole of a minimum diameter of twelve inches (12 In) or three (3) times the post diameter, and not less than fifty-one inches (51 In) deep.
- B. Post sizes and rails shall be as specified in TABLE 4.1 – GATE MATERIALS in this Section.

2.5 RAILS

- A. Rail material shall be two inch by four inch (2 In x 4 In) commercially available pine lumber, Number 1 grade, straight, free of knots and other defects, pressure treated, exterior grade, a minimum of twelve feet (12 Ft) in length.
- B. Rail splices shall be made utilizing hot dipped galvanized rail splices, commercially available and shall overlap splices on adjacent rails a minimum of two feet (2 Ft).
- C. Bottom rail shall be located at a sufficient distance above finished grade to allow attachment of a one inch by eight inch (1 In x 8 In) cedar rot board between the ground and the bottom of the fence pickets.
- D. Bent or warped rails which would create an uneven mounting surface for the fence pickets shall not be accepted.
- E. The middle and top rails shall be spaced evenly between the bottom rail and within six inches (6 In) below the top of the posts.
- F. Rails shall be attached to line posts with five-sixteenths inch by four and three-quarter inch (5/16 In x 4-3/4) hot dipped galvanized carriage bolts with flat washers and nuts, two (2) per rail on each post.
- G. Rails shall be attached to terminal posts with five-sixteenths inch by five

and one-half inch (5/16 In x 5-1/2 In) hot dipped galvanized carriage bolts with flat washers and nuts, two (2) per rail on each post.

- H. Rails shall be attached to gate posts with hot dipped galvanized carriage bolts with flat washers and nuts, two (2) per rail on each post.
- I. Rails shall be attached to gate posts with hot dipped galvanized carriage bolts with flat washers and nuts of the size shown in paragraph 2.4.B. of this Section.
- J. Each rail member shall be supported by a minimum of two (2) posts between splices.
- K. Splices shall not be made within four inches (4 In) of posts.

2.6 CEDAR PICKETS AND ROT BOARDS

- A. Fencing pickets shall be one inch by six inch by eight feet long (1 In x 6 In x 8 Ft) commercially available cedar pickets number 1 graded, straight, free of knots and other defects and pointed on top.
- B. Rot boards shall be one inch by eight inch by ten feet long (1 In x 8 In x 10 Ft) cedar number 1 graded, straight, free of knots and other defects.
- C. Pickets and rot boards shall be of uniform coloration, size and grading to provide a neat and consistent appearance of the finished fence.
- D. Bent or warped pickets or rot boards which would cause openings between adjacent pickets greater than one-quarter inch (1/4 In) in width shall not be accepted.
- E. Pickets and rot boards shall be attached to rails with hot dipped galvanized 2-p nails, two (2) per rail on each picket.
- F. Pickets shall be mounted against the rot board to provide approximately two inches (2 In) of clearance above finished grade.

2.7 GATES

- A. Gate frames shall be fabricated of hot dipped galvanized two inch (2 In) O.D. schedule 40 steel pipe with galvanized pressed steel or malleable iron corner ells, securely riveted to the frame with four (4) rivets per corner.
- B. Internal bracing shall be hot dipped galvanized one and one-quarter inch (1-1/4 In) schedule 40 steel pipe with three-eighths inch (3/8 In) adjustable truss rods.
- C. Gates may be of the swing or slide type as approved or as shown on the Drawings.
- D. Gates shall be provided with padlocking device.
- E. Swing gates over six feet (6 Ft) in width shall have rollers near ends to make them easier to open and close.
- F. Gates six feet (6 Ft) and greater in width shall have center rests and semiautomatic catch to secure gate in open position.
- G. The bottom hinge shall be:
 - 1. A ball and socket type; or
 - 2. A type allowing pivot on vertical member of gate frame.
 - 3. Gate removal shall not require disassembly of the hinge.

- 4. Made of malleable iron.
- H. The upper hinge shall be:
 - 1. A one hundred degree (180°) wrap-around type,
 - 2. made of malleable iron, base galvanized; and
 - 3. allow gate to swing one hundred eighty degree (180°) in either direction.
- I. Slide gates shall be track mounted or wheeled in such a manner as to provide a maximum opening clearances of gate.
- J. Attach fencing pickets to gate frame with five-sixteenths inch by three and one-quarter inch (5/16 In x 3-1/4 In) hot dipped galvanized carriage bolts with flat washers and nuts, a minimum of two (2) per picket.

PART III: EXECUTION

3.1 INSTALLATION

- A. The fence shall be installed by skilled and experienced fence erectors, and on lines and grades indicated on the Drawings.

3.2 CONSTRUCTION

- A. All posts shall be capped and set plumb and in three thousand (3000 psi) compressive strength concrete footings of the size specified under corresponding post section of this specification and conforming to Section 03300 – Structural Concrete.
- B. The concrete shall extend a minimum three inches (3 In) below the bottom of the post.
- C. Concrete shall be crowned slightly above grade to provide drainage and troweled to provide a smooth, neat appearance.
- D. Galvanizing shall be in accordance with ASTM A123.
- E. No aluminum or pot metal fittings shall be acceptable.

PART IV: TABLES

TABLE 4.1 GATE MATERIALS

MAXIMUM WIDTH OF SINGLE GATE (FT)	DIAMETER OF POST (IN)	RAIL ATTACHEMENT BOLT SIZE
6	3	5/16" x 5 1/2"
12	4	5/16" x 6 1/2"
16	6	3/8" x 8 1/2"
20	8	3/8" x 10 1/2"

END OF SECTION