SECTION 02820 – FENCES AND GATES [ORNAMENTAL]

PART 1 – GENERAL

* 1. SUMMARY
1. This Section includes, but is not limited to, fence and gates of the following types:
2. Manufactured ornamental fiberglass fence and gate system.
3. Manufactured fiberglass screen fence on metal or/fiberglass posts and gate system conforming to the City of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ regulations.
4. Related Sections include the following:
5. Earthwork: Division 2
6. Cast-in-place concrete: Division 3
7. Unit Masonry: Division 4
8. Mechanical: Division 15
9. Electrical: Division 16
	1. DEFINITIONS
10. AFA: American Fence Association; the national association for companies in the fence industry. “AFA” publishes general standards on installing all kinds of fencing.
11. Manufacturing Standards: according to the generally accepted practice of spacing, setting posts, and mounting panels of fencing which varies from company to company, but as a rule may be identified on average. Example, setting posts two foot in the ground in cement for up to six (6’) tall fence and three (3’) foot in the ground for any fence over that height.
	1. SUBMITTALS
12. Product Data: Material descriptions, construction details, dimensions of individual components and profiles and finishes.
13. Shop Drawings: Show configuration and locations of fence, each gate, posts, rails, and tension wires and details of extended posts, extension arms, gate swing, or other operation, hardware, and accessories. Indicate materials, dimensions, sizes, weights, and finishes of components. Include plans, elevations, sections, gate swing and other required installation and operational clearances, and details of post anchorage and attachment and bracing.
14. Provide shop drawings for all special fabricated items.
15. Samples: Manufacturer’s color charts or 6 inch minimum lengths of actual units showing the full range of colors available for components with manufactured permanent pigmentation of fence product.
16. Product Certificates: Signed by manufacturer(s) certifying that products furnished comply with requirements.
17. Installer Qualification Data: For firms and persons to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
18. Provide additional data and /or samples as required by the Architect.
	1. QUALITY ASSURANCE
19. Installer Qualifications: An experienced installer who has completed privacy and board on board style fencing as well as ornamental style fencing and associated gates similar in design, and to the extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
20. Single Source: Obtain each color, grade, finish, type and variety of components for fences and gates from one source with resources to provide each type of fences and gates of consistent quality in appearance and physical properties.
	1. PROJECT CONDITIONS
21. Field Measurements: Verify layout information for fences and gates show on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

PART 2 – PRODUCTS

2.1 MANUFACTURED ORNAMENTAL FIBERGLASS FENCING AND GATES

1. Provide manufactured fencing and gates in locations and configurations indicated.
2. Basis of Design: Provide fence system utilizing ¾” x 2” rectangular fiberglass tubing for rails as well as 2” x 2” square tubing for rails and 1” diameter fiberglass tubing for vertical pickets. The panels are 8’ wide and pickets are spaced center to center 4” inches, as manufactured by F&F Composite Group, Inc. d/b/a Fiberfence, in Keller, Texas (817) 379-4411 or [www.fiberfence.com](http://www.fiberfence.com)
3. Fence height: 8’ – 0”
4. Provide fence lengths and locations indicated with [fill in with gate information requested]. Gates shall match fence height.
5. Materials:
6. Fiberglass: Mechanical Properties – Tensile Modulus – ASTM D-638 (PSI) 2.5x106
7. ASTM D -790 (PSI) 30,000
8. Flexural Modulus – ASTMD-790 (PSI)2.8 x 106
9. Compressive Strength – ASTM D-695 (PSI) 30,000
10. Compressive Modulus – ASTM D-695 (PSI) 2.5 x 106
11. Izod Impact Strength – ft-lbs/in-25
12. Barcol hardness – 45
13. Coef. Thermal Expansion – ASTM D-696 (in/in/degree F) 4.4 106
14. Pickets: 1” diameter x 8’ height
15. Rails: 2” x ¾” x 8’ long
16. Rails: 2” x 2” x 8’ long
17. Posts: 3” x 3” x 11’ height (for line posts, gate post will add 1’ length)
18. Fasteners and Accessories: Provide manufacturer’s standard color matching tamper resistant fasteners and installation accessories.
19. Gate Opening Hardware: Manufacturer’s standard \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gate hardware and locking.
20. Finish
21. Color: As selected from the manufacturer’s available colors.
22. Pigmentation of fiberglass materials are fade resistant. Accelerated lab test performed showed no fading up to twelve years.
23. Coating: same color as pigmentation of fiberglass but manufactured by Sherwin Williams and known to withstand normal weathering up to twenty five years without noticeable fading
24. Fabrication
25. Factory fabricate and finish all fence and gate components. Fabricate fence panels in nominal 8’ lengths. Gates and fence panel pickets spaced at 4” nominal on center.
26. Fence panels shall be capable of supporting 400 plus pound load at mid span without permanent deflection.
27. Fabricate \_\_\_\_\_ gates in \_\_\_ ’-0” widths and with appropriate hinge and locking
28. Fabricate \_\_\_\_\_gates in \_\_\_\_ ‘-0” opening widths. Fabricate each\_\_\_\_\_ gate for [future installation of remote controlled electric operator].

PART 3 – EXECUTION

3.2 MANUFACTURED FIBERGLASS FENCING AND GATE SYSTEM

1. Examine areas and conditions, with Installer preset, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance.
2. Do not begin installation before final grading is completed.
3. Proceed with installation only after unsatisfactory conditions have been corrected.
4. Stake locations of fence lines, gates and terminal posts. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.
5. Installation, General: Install fencing to comply with manufacturer’s printed instructions and more stringent requirements specified.
6. Install fencing on indicated lines.
7. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacing indicated, in firm, undisturbed or compacted soil.
8. Post Setting: Hand-excavate holes for post foundations in firm, undisturbed or compacted soil. Set all posts in concrete footings. Protect portion of posts above ground from concrete splatter. Place concrete around posts and vibrate or tamp for consolidation. Using mechanical devices to set line posts is not permitted. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during placement and finishing operations until concrete is sufficiently cured.
9. Exposed Concrete Footings: Extend concrete 2 inches (50mm) above grade, smooth, and shape to shed water.
	1. SECURITY FENCE AND PANEL INSTALLATION
10. Set fiberglass fencing according to manufacturer’s and industry standards.
11. Set panels level, plumb and secure Attachment hardware shall be tamper –resistant or concealed. Adjust anchors for secure installation where necessary.
	1. ADJUSTING AND COMPLETION
12. Gate: Adjust gates to operate smoothly, easily, and quietly, free from binding, warp, excessive deflection, distortion, non-alignment, misplacement, disrupting, or malfunction throughout the entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
13. Properly lubricate operating hardware and other moving parts.
14. Installer shall train Owner’s personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining installed systems.