

**BASTEEL PERIMETER SYSTEMS™**  
**Citadel Security Fence System**

**SECTION 32 31 19**

**DECORATIVE METAL FENCES AND GATES**

EDIT NOTE: This Document has been prepared by BASTEEL Perimeter Systems™ <http://www.basteel.com/> for use by Specifiers, Clients, Architects, and Engineers. Editing may be necessary to specify the particular job requirements prior to publication. To aid in this step, this Document identifies job-specific information to be selected (or further defined) by the use of red instructional text located within brackets (see 1.1 A, below).

**PART 1 GENERAL**

- A. Scope of this Specification includes **Citadel Security Fence System** manufactured by BASTEEL Perimeter Systems™.
  - 1. Consult Manufacturer for further information. BASTEEL Perimeter Systems, 1400 Magnolia Avenue, Frankfort, Indiana 46041, 1-866-369-8335, see <http://www.basteel.com/>
- B. NOTE: BASTEEL also designs and manufactures matching gate systems of similar quality and design attributes, including Swing Gates, Cantilever Gates and Pedestrian Access Gates.

**1.1 WORK INCLUDED**

- A. Contractor shall provide labor, materials and appurtenances necessary for installation of Steel Security Fence System defined herein at [*INSERT PROJECT NAME, LOCATION*], further described within Part 2 of this specification.

**1.2 RELATED WORK**

- A. Section 03 30 00 Cast-In-Place Concrete: Concrete anchorage for posts.
- B. Section 31 00 00 Earthwork.

**1.3 SYSTEM DESCRIPTION**

- A. Manufacturer shall supply a Steel Decorative High Security Fence System of BASTEEL Perimeter Systems **Citadel Security Fence System** design.

**1.4 QUALITY ASSURANCE**

- A. Contractor shall provide laborers and supervisors who are thoroughly familiar with type of construction involved and materials and techniques specified. Contractor shall report in writing to Architect prevailing conditions that may adversely affect satisfactory execution of Work.
  - 1. Do not proceed with Work until unsatisfactory conditions have been corrected.
- B. Additional qualifications:
  - 1. Manufacturer: Company specializing in manufacturing Products specified with minimum ten (10) years documented experience.
  - 2. Installer: Company specializing in performing Work of this Section shall have sufficient documented experience in installation of similar Products.

**1.5 REFERENCES**

- A. American Society for Testing and Materials (ASTM):

1. ASTM A500/A500M-13: Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
  2. ASTM A653/A653A: Standard Specification for Steel Sheet, Zinc-Coated by the Hot-Dip Process.
  3. ASTM D2244: Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
  4. ASTM D4214: Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.
  5. ASTM F1043: Specification for Strength and Protective Coatings for Metal Industrial Fence Framework.
- B. American Architectural Manufacturers Association (AAMA).
1. AAMA 621: Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) & Zinc-Aluminum Coated Steel Substrates.
- C. American National Standards Institute (ANSI).
1. ANSI B1.13M: Metric Screw Threads: M Profile.

## **1.6 SUBMITTALS**

- A. Manufacturer submittal package shall be submitted in accordance with Section 03 3300 prior to installation.
- B. Manufacturer shall utilize available architectural drawings, customer conceptual drawings, available field measurements and other graphic and verbal information initially provided by Architect to develop proposed project drawings for subsequent review and approval.
- C. Requirements for Submittals:
1. Identify Product Data from Manufacturer regarding gates, posts, accessories, fittings and hardware. Identify applicable certifications including, but not limited to following:
    - a. Made in U.S.A., Buy American Act or otherwise, as required.
  2. Specify applicable requirements related to intended use, such as but not limited to the need for licensed professional engineering (PE) certification.
  3. Provide submittal drawings depicting layout of fence location with field dimensions, location of gates and opening sizes, elevation of fences and gates, details of attachments and footing details, as required.
 

NOTE: Specific footing requirements may vary due to soil conditions, frost line and other local conditions. Consult with local jurisdictional authority regarding site requirements and local conditions.
  4. Verify by field measurements that actual field dimensions and layout shown on submittal drawings accurately reflect customer installation requirements, property survey lines and existing structures.
  5. Submit quality assurance information including documentation of installation contractor experience confirming compliance with specified qualification requirements.
  6. Manufacturer material certification shall conform to current ASTM or other applicable specifications and shall be made available upon request.

## **1.7 PRODUCT HANDLING AND STORAGE**

- A. Upon delivery, Contractor shall confirm materials were delivered undamaged and items necessary for installation are present on site. Contractor shall report discrepancies to Manufacturer at time they are identified, prior to beginning installation work.
- B. Requirements for Handling and Storage:
1. Prior to and during installation process protect finished metal surfaces with wrapping or strippable coating. Do not use adhesive papers or sprayed coatings that may bond to metal when exposed to sunlight or weather.
  2. Materials shall be securely stored to protect against accidental damage, vandalism and theft in a manner that provides proper ventilation, drainage and protection from anticipated weather conditions.
  3. Product shall be handled in a manner to preserve integrity of finish coating as well as form and function of each fence component.

4. NOTE: Failure to comply with requirements B.1, B.2 or B.3 above shall void Manufacturer Product Warranty.

## 1.8 PRODUCT WARRANTY

- A. Structural components (i.e. posts, rails, infill pickets) shall be warranted for fifteen (15) years within specified limitations as described within Manufacturer Master Warranty Statement.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. The design is based on Products exclusively designed and manufactured by:
  1. BASTEEL Perimeter Systems, 1-866-369-8335; see <http://www.basteel.com/>
  2. BASTEEL product substitutions are permitted.
  3. Product Substitutions by other manufacturer shall be submitted to Architect in accordance with substitution requirements as set forth in general provisions of Project Manual.

### 2.2 MATERIALS

- A. Infill pickets 5 inches in width shall be liquid color-coated and then roll formed from minimum 0.017-inch-thick full-hard 80,000 psi minimum yield strength steel in accordance with ASTM A653:
  1. Protective coatings shall consist of a hot dip galvanized zinc G-90 under coat; then a two-coat, thermocured paint system consisting of a primer bottom coat and a fluoropolymer top coat. Fluoropolymer top coat shall contain not less than 70 percent polyvinylidene difluoride by weight (e.g. Kynar 500® PVDF resin-based coating) complying with physical properties and coating performance requirements of AAMA 621.
  2. Top coat protection shall meet minimum performance requirements of South Florida outdoor exposure of 45° with a color retention of less than five (5) units color change per ASTM D2244 and a chalk resistance rating of no less than eight (8) per ASTM D4214.
- B. Roll formed C-channel rails and brackets shall be 14 gage ASTM A653 high strength 50,000 minimum psi yield strength steel, having additional characteristics defined below.
  1. A protective galvanized G-90 under coat shall be applied prior to 3-mil minimum thickness protective finish layer in specified color, consisting of consisting of (**SPECIFY ONE**)
    - a. [**super-durable polyester powder coat**], or
    - b. [**thermocured fluoropolymer powder coat**]
- C. Standard square posts shall conform to ASTM A500 and be either:
  1. 4"x 4" high strength steel, 50,000 psi minimum yield strength, zinc coated per ASTM F1043 type B, or
  2. 6"x 6" steel, hot dipped galvanized to minimum thickness of 1.8 oz. per square foot, per side.
  3. Posts shall have 3-mils minimum thickness thermo-cured top coat protective finish layer in the specified color consisting of (**SPECIFY ONE**)
    - a. [**super-durable polyester powder coat**], or
    - b. [**thermocured fluoropolymer powder coat**]
  4. NOTE: For certain products, optional round posts are available to match existing fence.
- D. Infill fasteners shall be series 302 stainless steel 6-Lobe pin-in security truss head, full body shouldered conforming to ANSI B1.13M with a minimum pull out tensile strength of 5,500 N. Carriage bolts and nuts for rails and framing shall be stainless steel. Other fasteners shall be corrosion resistant.
- E. Security and Safety Options (**SPECIFY THOSE THAT APPLY**)
  1. **Security R-Top Option** shall consist of a series of 1" x 1" 16 gage vertical spears securely attached to horizontal rails via rivets having a minimum shear strength of 1245 pounds and a minimum tensile strength of 1505 pounds each.

- a. Protective coatings shall comply with same material specifications and performance requirements as specified within herein.
2. **Top Cap Option** shall be manufactured to match infill panels made available for use on fence systems utilizing vertical infill pickets.

F. Color Selection:

1. Architect shall specify top coat color selection from Manufacturer list of stock colors (**SPECIFY ONE**)
  - a. [Bronze]
  - b. [Patrician Bronze]
  - c. [Desert Sand]
  - d. [Canyon Brown]
  - e. [Cinder Black]
  - f. [Polar White]
2. NOTE: Custom colors are available, contact Manufacturer.

## 2.3 FABRICATION

- A. Pickets, rails, framing, posts and accessories shall be provided as integral components of an engineered fence system as detailed in Manufacturer shop drawings or as otherwise defined by Manufacturer.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. New installations shall be laid out by contractor in accordance with information provided by Architect. Verify field measurements, surfaces, substrates and conditions are as required and ready to receive Work.

### 3.2 FENCE INSTALLATION

- A. Contractor shall consult with local jurisdictional authorities regarding specific utility locate requirements. Contractor shall arrange for local underground utility locate service to identify and locate potential below-grade utility hazards such as electric, gas, water, sewer, telecommunications and similar infrastructure prior to commencing clearing, digging, excavating or fence installation work.
- B. Contractor shall install fencing in accordance with Manufacturer Installation Instructions and approved shop drawings. Fence posts shall be located and spaced in accordance with Manufacturer drawings. Posts shall be set in suitable concrete footers designed and constructed for structural integrity in specific application.
1. Setting of fence posts by other methods (e.g. base plate mounting, grouted core-drilled footers) is permissible only as determined by Architect.
  2. Should contractor elect to substitute foundation design, contractor shall make sure design and construction of alternate foundation design will be sufficient for intended application.
- C. Fence installation may require limited cutting or drilling to accommodate slight variations in field measurements and normal construction tolerances. Contractor shall take reasonable precautions to make sure exposed metal surfaces are properly sealed from environment, as described below:
1. Carefully inspect fence and metal components during installation.
  2. Remove metal shavings from drilling or cutting of posts or metal fence components.
  3. Where drilling or cutting was determined to be necessary, clean metal surfaces and apply two (2) coats of zinc-rich metal primer to thoroughly cover each cut edge or hole drilled during installation processes. Allow each coat to dry thoroughly.
  4. Apply two (2) thin coats of Manufacturer-supplied custom touch-up paint to such locations. Allow each coat to dry thoroughly.
  5. Inspect work and verify each drilled or cut metal surface was properly treated, as described above.

6. NOTE: Failure to properly clean, prime and finish paint exposed surfaces as described in steps C.1 – C.5 above shall void Manufacturer Warranty.

### **3.3 FIELD QUALITY CONTROL**

- A. Contractor shall perform contractor quality control inspections and document findings upon completion of installation Work.
  1. Inspect fence installation, post spacing, fence location dimensions and finishes.
  2. Document preparatory, initial and follow-up inspection in Contractor's Test and Inspection Reports.
  3. Contractor Test and Inspection Reports shall be available to Architect and Manufacturer upon request.
- B. Contractor shall correct deficiencies in Product and Installation found to be out of compliance with Contract Documents.

### **3.4 GATES**

- A. For projects that include gates, refer to Manufacturer Installation Instructions and Specifications.

### **3.5 CLEANING**

- A. Contractor shall clean jobsite of excess fence materials as well as remaining packing and shipping materials. Post hole excavation material shall be scattered uniformly away from posts unless otherwise specified within Contract Documents.

**END OF SECTION**