

**Aegis Plus™ - Warrior Style
Construction Specification**
Section 02825

AMERISTAR®

02825/AEG

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**ORNAMENTAL STEEL FENCE SYSTEM, COMMERCIAL
AEGIS PLUS - WARRIOR STYLE**

PART 1 - GENERAL

1.01 WORK INCLUDED

The contractor shall provide all labor, materials, and appurtenances necessary for installation of the commercial ornamental steel fence system defined herein at (specify project site).

1.02 RELATED WORK

Section _____ - Earthwork

Section _____ - Concrete

1.03 SYSTEM DESCRIPTION

The manufacturer shall supply a total commercial ornamental steel fence system of the Ameristar® Aegis Plus™ Warrior™ design. The system shall include all components (i.e., pickets, rails, posts, gates and hardware) required.

1.04 QUALITY ASSURANCE

The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES

ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot Dip Process

ASTM A924/A924M - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot Dip Process

ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength and High-Strength Low-Alloy with Improved Formability

ASTM B117 - Practice for Operating Salt Spray (Fog) Apparatus

ASTM D523 - Test Method for Specular Gloss

ASTM D822 - Practice For Conducting Tests On Paint and Related Coatings and Materials Using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus

ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments

ASTM D2244 - Test Method for Calculation of Color Differences From Instrumentally Measured Color Coordinates

ASTM D2794 - Test Method for Resistance of Organic Coatings to The Effects of Rapid Deformation (Impact)

ASTM D3359 - Test Method for Measuring Adhesion by Tape Test

1.06 SUBMITTAL

The manufacturer's literature shall be submitted prior to installation.

1.07 PRODUCT HANDLING AND STORAGE

Upon receipt at the job site, all materials shall be checked to ensure that no damage occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism, and theft.

PART 2 - MATERIALS

2.01 MANUFACTURER

The commercial ornamental steel fence system shall conform to Ameristar® Aegis Plus™, Warrior™ (specify 2-Rail, 3-Rail, or 3-Rail With Rings) style manufactured by Ameristar Fence Products, Inc., in Tulsa, Oklahoma.

2.02 MATERIAL

A. Steel material for fence framework (i.e., tubular pickets, rails, and posts), when galvanized after forming, shall conform to the requirements of ASTM A1011/1011M, with a minimum yield strength of 50,000 psi (344 MPa). The exterior shall hot-dip galvanized with a 0.45 oz/ft² (138 g/m²) minimum zinc weight. The interior surface shall be coated with a minimum 81% nominal zinc pigmented coating, 0.3 mils (0.0076mm) minimum thickness.

B. Steel material for fence framework (i.e., tubular pickets, rails, and posts), when galvanized prior to forming, shall conform to the requirements of ASTM A924/924M, with a minimum yield strength of 50,000 psi (344 MPa). The steel shall be hot-dip galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft² (276 g/m²), Coating Designation G-90.

C. The manufactured galvanized framework shall be subjected to the PermaCoat® thermal stratification coating process (high-temperature, in-line, multi-stage, multi-layer) including, as a minimum, a six-stage pretreatment/wash (with zinc phosphate), an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The base coat shall be a zinc-rich thermosetting epoxy powder coating (gray in color) with a minimum thickness of 2 mils (0.0508mm). The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be (specify black, bronze, white, or desert sand). The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 1.

Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117 & D1654	Corrosion Resistance over 3,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822, D2244, D523 (60° Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

Table 1 – Coating Performance Requirements

D. Material for fence pickets shall be 3/4" square x 16ga. tubing. The cross-sectional shape of the rails shall conform to the manufacturer's ForeRunner™ design with outside cross-section dimensions of 1.50" square and a minimum thickness of 14ga. Picket holes in the ForeRunner™ rail shall be spaced 4.70" o.c. Picket retaining rods shall be 0.125" diameter galvanized steel. Posts shall be a minimum of 2-1/2" square x 12ga. High quality PVC grommets shall be supplied to seal all picket-to-rail intersections.

2.03 FABRICATION

A. Pickets, rails, and posts shall be precut to specified lengths. ForeRunner™ rails shall be pre-punched to accept pickets.

B. Grommets shall be inserted into the pre-punched holes in the rails and pickets shall be inserted through the grommets so that pre-drilled picket holes align with the internal upper raceway of the ForeRunner™ rails. (Note: This can best be accomplished by using an alignment template.) Retaining rods shall be inserted into each ForeRunner™ rail so that they pass through the predrilled holes in each picket, thus completing the panel assembly.

C. Completed panels shall be capable of supporting a 400 lb. load (applied at midspan) without permanent deformation. Panels without rings shall be biasable to a 25% change in grade; panels with rings shall be biasable to a 12.5% change in grade.

D. Gates shall be fabricated using Aegis Plus™ panel material and gate ends having the same outside cross-section dimensions as the ForeRunner™ rail. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined either by welding or by the same retaining rod process used for panel assembly.

PART 3 - EXECUTION

3.01 PREPARATION

All new installation shall be laid out by the contractor in accordance with the construction plans.

3.02 INSTALLATION

Fence posts shall be set in accordance with the spacings shown in Table 2, plus or minus 1/2", depending on the nominal span specified.

Span	6' Nominal (73-1/4" Rail)		8' Nominal (92" Rail)	
Post Size	2-1/2"	3"	2-1/2"	3"
Post Settings ± 1/2 O.C.	76-3/4"	77-1/4"	95-1/2"	96"

Table 2 – Post Spacing Requirements

Gate posts shall be spaced according to the gate openings specified in the construction plans. The "Earthwork" and "Concrete" sections of this specification shall govern post base material requirements. Aegis Plus™ panels shall be attached to posts using mechanically fastened panel brackets supplied by the manufacturer.

3.03 CLEANING

The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.