

**AMERISTAR FENCE PRODUCTS**  
**Stalwart II® Anti-Ram Barrier | K8 (DOD-USACE) Cable System**  
**Construction Specification 32 30 00.11**

**PART 1 – GENERAL**

**1.01 WORK INCLUDED**

The contractor shall provide all labor, materials and appurtenances necessary for installation of the anti-ram barrier 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 anti-ram cable barrier system of the Ameristar® Stalwart II® (*specify* Classic, Majestic, Genesis or Invincible) K8 (DOD-USACE) design. The system shall include all components (i.e., cables, supports, panels, posts, and hardware) required. The barrier shall comply with Ameristar's System Drawing Number (*specify* Classic SAC2-K8DOD-WR, Majestic SAM2-K8DOD-WR, Genesis SAG2-K8DOD-WR or Invincible SAI2-K8DOD-WR).

**1.04 QUALITY ASSURANCE**

A. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified. Installation contractor used for this scope of work must provide documentation from the manufacturer showing completion of core training on Stalwart anti-ram barrier systems.

**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 B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
- ASTM D523 - Test Method for Specular Gloss.
- ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.
- 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.
- ASTM F2656 – Standard Test Method for Vehicle Crash Testing of Perimeter Barriers
- Federal Specification RR-W-410E / Wire Rope and Strand.
- ASTM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets.

**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**

A. The anti-ram cable barrier system shall conform to the Stalwart II (*specify* Classic, Majestic, Genesis or Invincible) K8 (DOD-USACE) design, manufactured by Ameristar Fence Products, Inc., in Tulsa, Oklahoma. This system shall be tested and certified by the U.S. Department of State Bureau of Diplomatic Security Division standard SD-STD-02.01 (Revision A), Impact Condition Designation K8, Penetration Rating L2, with capability of stopping a 15,000 lb vehicle traveling at speeds up to 40mph.

B. The integrated steel fence panel shall conform to Aegis II® Ornamental Steel, (*specify* Classic, Majestic, Genesis or Invincible) design, (specify 2-Rail, 3-Rail, or 3-Rail with Rings) style, manufactured by Ameristar Fence Products, Inc., in Tulsa, Oklahoma.

C. The entire anti-ram barrier system, and all associated panels, gates, accessories, fittings, and fasteners shall be obtained from a single source.

### **2.02 MATERIAL**

A. Steel material for cable-supporting framework and fence panels (i.e., panels, rails and posts) shall be galvanized prior to forming and shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 45,000 psi (310 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/ft<sup>2</sup> (276 g/m<sup>2</sup>), Coating Designation G-90.

B. Material for fence panel pickets shall be 1” square x 14 Ga. tubing. The fence panel rails shall conform to the manufacturer’s ForeRunner™ double wall design with outside cross-section dimensions of 1.75” square and a minimum thickness of 14 Ga. Picket holes in the ForeRunner rail shall be spaced 4.715” o.c. Picket retaining rods shall be 0.125” diameter galvanized steel. High quality PVC grommets shall be supplied to seal all picket-to-rail intersections. The cross-sectional shape of the rails shall conform to the manufacturer's Stalwart II rail design a nominal 2” x 2” x 11 Ga. Tamperproof fasteners shall be used to fasten each fence panel to post bracket and rail to post connections. Posts shall conform to the manufacturer's Stalwart II I-Beam design with a nominal 3” x 2.75” x 12 Ga.

C. The cable material shall be Independent Wire-Rope Core (IWRC) wire rope conforming to Federal Specification RR-W-410E, 6 x 36 Warrington Seale, preformed, right regular lay, medium lubrication, Extra Improved Plow Steel (EIPS), with a breaking strength of 103,400 pounds (51.7 tons). Cable diameter shall be 1 inch.

### **2.03 FABRICATION**

A. Stalwart II rails and posts shall be pre-cut to specified lengths. Post flange shall be pre-punched to accept rail to post and fence panel to post bracket attachment. Post web shall be punched providing a clear opening for interior of rails to align throughout the entire system for affixing conduit, video cabling, IDS wiring, and other components for a complete systems integration. Stalwart II rails shall be attached to I-beam post flange providing a bracket-less design at each intermediate post.

B. Fence panel pickets and rails shall be pre-cut to specified lengths. ForeRunner rails shall be prepunched to accept pickets. Pickets shall be predrilled to accept retaining rods. Grommets shall be inserted into the prepunched holes in the rails and pickets shall be inserted through the grommets so that predrilled picket holes align with the internal upper raceway of the ForeRunner rails. Retaining rods shall be inserted into each ForeRunner rail so that they pass through the predrilled holes in each picket.

C. The manufactured galvanized anti-ram framework and fence panels 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 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 black. The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 1.

D. The manufactured fence panel shall be capable of meeting the vertical load, horizontal load, and infill performance requirements for Industrial weight fences under ASTM F2408.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION**

A. The purchaser shall indicate the location of barrier line with suitable stakes. Stake intervals shall not exceed 500 ft or line of sight.

B. The purchaser shall indicate all underground utility locations, USC&G benchmarks, property monuments, and other underground structures.

C. Before installing the Stalwart II (Aegis II) Anti-Ram Cable System, all necessary site clearing and grading shall be performed by the purchaser. An adequate clearance on both sides of the cable barrier line is required.

D. Installation contractor for this scope of work must be capable of bonding projects up to \$3 million and must demonstrate such with a letter from a reputable bonding entity with the bid documents.

E. Installation contractor for this scope of work must provide documentation from the product manufacturer indicating they have been trained on installation practices for Stalwart anti-ram systems by the product manufacturer, documentation shall be provided with bid documents.

F. Installation contractor for this scope of work must provide documentation with bid indicating that the company currently has in place a minimum \$2 million in general liability coverage as well as a minimum \$1 million in commercial vehicle insurance, documentation shall be provided with bid documents.

### **3.02 INSTALLATION**

A. The Stalwart II barrier shall be installed per Ameristar's System Drawing. Fence panels, brackets, cabling, and fasteners shall be installed according to installation instructions and drawings. Posts and bollards shall be installed per product drawings and installation instructions. The "Earthwork" and "Concrete" sections of this specification shall govern material requirements for the concrete footer unless otherwise specified by the product drawings or installation instructions.

### **3.03 FENCE INSTALLATION MAINTENANCE**

When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Ameristar spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-Ameristar parts or components will negate the manufactures' warranty.

### **3.04 CLEANING**

The contractor shall clean the jobsite thoroughly to ensure it is left neat and free of any debris caused by the installation of the cable system.

<u>Quality Characteristics</u>	<u>ASTM Test Method</u>	<u>Performance Requirements</u>
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & 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).