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AMERISTAR®

for Architects and Specifiers

Aegis II™ Industrial & Aegis Plus™ Commercial

Ornamental Steel Fence

and

TransPort™ Ornamental Gates

Maintenance-Free PermaCoat™ Finish
Over Galvanized High Strength Steel

www.ameristarfence.com

AMERISTAR®

The Company Behind The Product

Ameristar Fence Products - Tulsa, OK

Ameristar® was chartered several years ago to provide specialty fence products that were more affordable, but did not compromise the quality level demanded by specifiers and consumers. This could be accomplished only by complete reformation of the way fence products were being manufactured. Product design was approached from many new perspectives: maximizing high-volume productivity; increasing strength and durability; promoting ease of installation; ensuring an environmentally friendly workplace; and enhancing aesthetic appearance. A new plant was designed and built to house state-of-the-art roll-forming, metal processing and powder coating equipment. The result (shown in the photo above) has boosted Ameristar to its current position as the largest manufacturer of ornamental fencing in the world.

HOW DO YOU SELECT A MANUFACTURER?

Ask these questions

IS THE COMPANY EXPERIENCED?

- Does the company's experience extend to product installation and use?
- Does the company's experience include an understanding of consumer preferences?

IS THE COMPANY CAPABLE?

- Does the company have an integrated in-house process or must operations be sublet?
- Does the company maintain extensive raw materials and finished goods inventory?

IS THE COMPANY A LEADER?

- Does the company merely meet minimum requirements or does it rise above?
- Do the company's products seem "just like all the others" or do they have added value?

AEGIS®

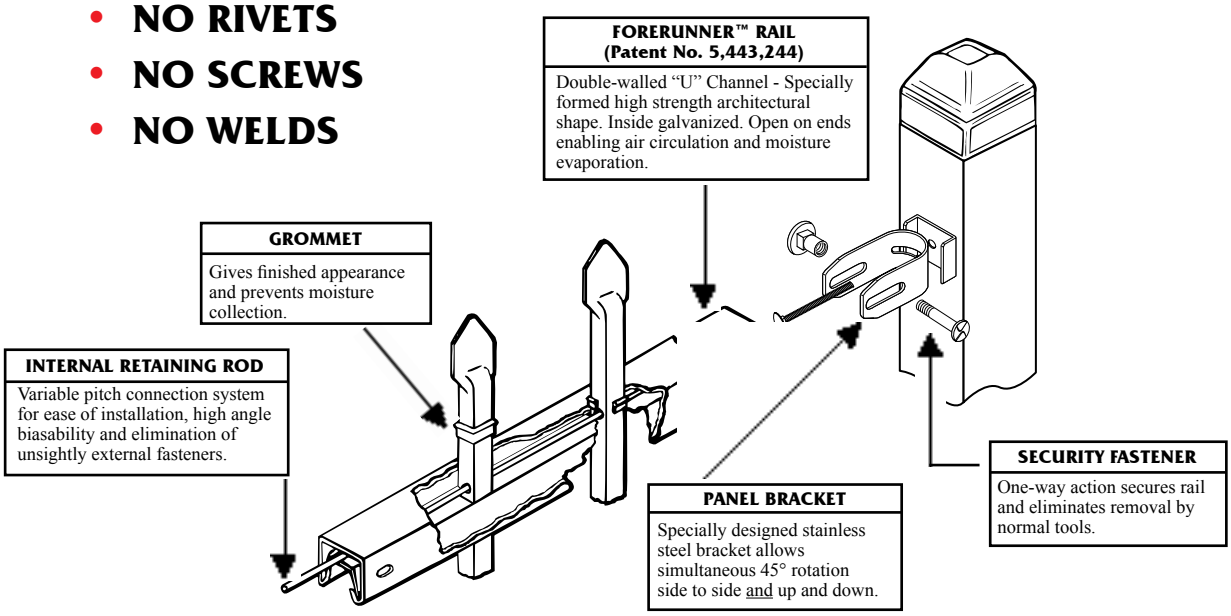
The Product Leader in Ornamental Fence

Aegis® - A revolutionary system of fence posts, framework and mounting accessories that are easily assembled to form an attractive "good neighbor" appearance with no exposed fasteners. Any truly great product must have a defining feature that sets it apart from all others; Ameristar's Aegis® fences, including Aegis II® Industrial and Aegis Plus® Commercial, has two such features:

FORERUNNER™ RAIL

(Four Walls of Steel)

- **NO RIVETS**
- **NO SCREWS**
- **NO WELDS**

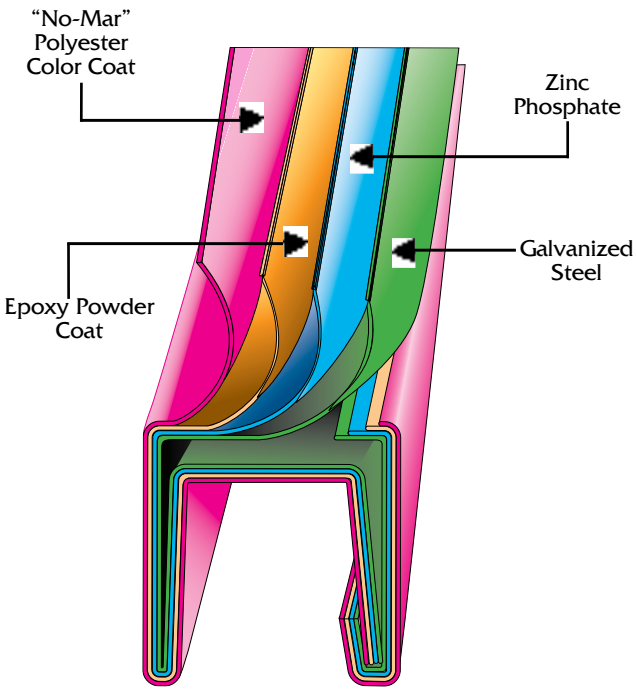


POWDER COATED

The steel base material has a G-90 hot dip zinc coating, galvanized by a process developed especially for powder coating. Electrostatic application in the PermaCoat® powder coating system results in coated surfaces with unmatched performance. The base coat of epoxy powder far surpasses the corrosion resisting abilities of painted surfaces. The "no-mar" polyester powder top coat reduces scratches and burnishing marks normally encountered during shipping.

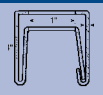
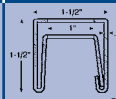
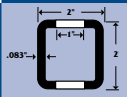
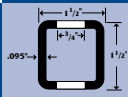
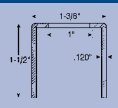
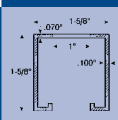
PERMACOAT® FINISH

(Double-Coat over Galvanized)



SUPERIOR STRENGTH AND SECURITY

RAIL STRENGTH

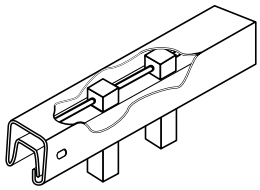
ForeRunner™ (Steel)	ForeRunner™ (Steel)	Structural Parameters			Square (Steel)	Square (Steel)	U-Channel (Steel)	U-Channel (Aluminum)
 Aegis II®	 Aegis Plus®	Profile of the Architectural Shape of the Rail *Vertical Design Loads are per rail; for capacity of fence panel, multiply by number of rails.			 Industrial	 Commercial		
.160	.160	T_{eff} = Effective Wall Thickness (IN)			.083	.095	.120	.100/.070
.1624	.1612	S_v = Section Modulus (IN) Vertical			.188	.115	.0938	
.367	.254	S_h = Section Modulus (IN) Horizontal			.309	.147	.210	.260
2.55	2.13	W = Rail Weight (LBS/FT)			2.11	1.75	1.68	
50,000	50,000	F_y = Yield Strength (PSI)			50,000	50,000	45,000	35,000
676#	652#	6' Span	Vertical Load Data PV_f = Ultimate Vertical	6' Span	523#	320#	- - - - -	
506#	492#	8' Span		8' Span	392#	239#	229#	- - - - -
1,020#	639#	6' Span	Horizontal Load Data PH_f = Ultimate Horizontal	6' Span	859#	409#	- - - - -	
765#	482#	8' Span		8' Span	644#	306#	438#	- - - - -
446#	430#	6' Span	* Vertical Load Data PV_d = Vertical Design Load @ .66 F	6' Span	345#	211#	- - - - -	
334#	325#	8' Span		8' Span	259#	158#	151#	- - - - -
673#	422#	6' Span	* Horizontal Load Data PH_d = Horizontal Design Load @ .66 F	6' Span	567#	270#	- - - - -	
505#	318#	8' Span		8' Span	425#	202#	289#	- - - - -

* RECOMMENDED LOAD VALUE FOR SAFE STRUCTURAL DESIGN (Allowable Strength = .66F_y).

ATTACHMENT SECURITY

Picket To Rail

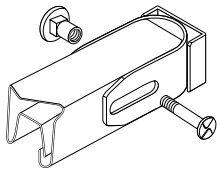
ForeRunner™ Rail
with Enclosed Retaining Rod



Rod is completely enclosed.
Attachment cannot be compromised.

Rail To Bracket

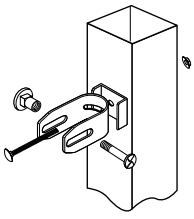
Aegis II™
Security Fastener

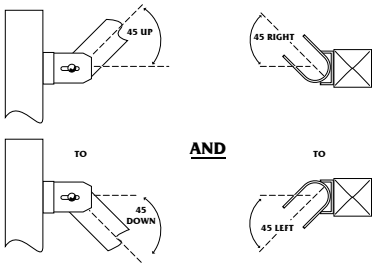


One-way fastener cannot be loosened by normally available tools.

Bracket To Post

Aegis II™ Industrial Bracket
High Strength Stainless Steel





Stainless steel is 75,000 PSI yield strength. Bracket will not fracture on severe impact as will cast material. Bracket allows simultaneous 45° rotation side to side and up and down.

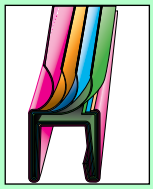
Ameristar® is America's largest manufacturer of ornamental steel fencing. Designing and forming a unique enclosed fastening system with vastly superior strength and security is one of the reasons for that achievement.

SUPERIOR FINISH

AMERISTAR® PERMACOAT® (DOUBLE COATED)	CONVENTIONAL POLYESTER (ONE COAT)	PAINT SYSTEM

PROTECTIVE APPLICATIONS

Aegis II® Fence System

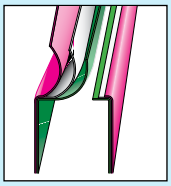


- Galvanizing (G-90)
- Zinc Phosphate ①
- Epoxy ②
- No-Mar Polyester

Double Coating (5 to 6 Mils.)

Riveted U-Channel

- Galvanizing
- Iron Phosphate ①
- Polyester



Steel Welded Fences

- Steel
- Primer
- Top Coat

SALT SPRAY RESISTANCE (ASTM B117)

3,500 Hrs.....500 Hrs.....100 Hrs.

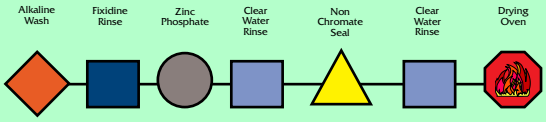
① Zinc compounds are used in the phosphatizing process because they add a significant amount of sacrificial cathodic protection. The zinc is much more active than steel; therefore, the zinc must oxidize before the steel is free to corrode. Iron phosphate, by contrast, provides no sacrificial cathodic advantage when applied to steel.

② The epoxy in the first of Ameristar's two coating applications acts as a supplemental seal against moisture.

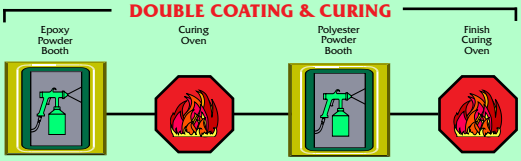
PRE-TREATMENT/COATING PROCESS

11 Stage PermaCoat® Double-Coating Process

7 STAGE PRE-TREATMENT

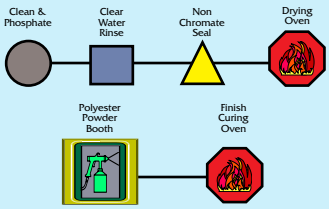


DOUBLE COATING & CURING



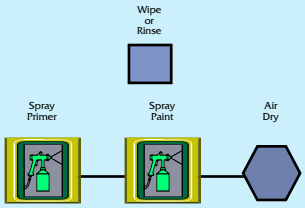
All fence parts, gates and accessories are given complete double PermaCoat® application.

Conventional Polyester Process



Simultaneous cleaning and phosphatizing significantly decreases the effectiveness of both treatments.

Conventional Painting Process



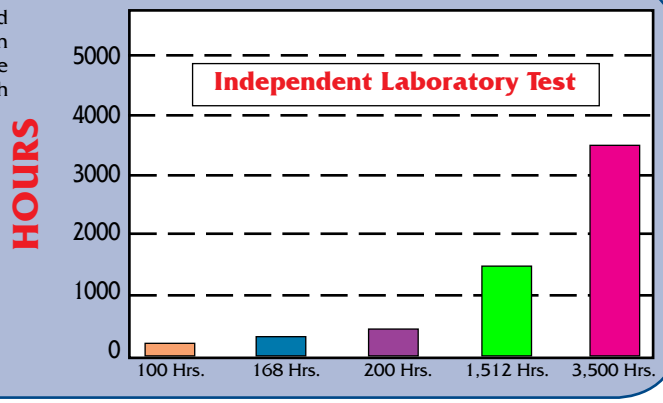
No transition protection between base material and paint with this process.

CORROSION RESISTANCE

Welded steel fences are frequently painted or single-coated without pre-treatment. Ameristar's PermaCoat® system ensures the maximum protection that can be applied. The graph to the right shows dramatically how this compares with painted steel.

SALT SPRAY RESISTANCE
In Accordance with ASTM B117 Test Method

- Painted over Steel
- Primed and Painted over Steel
- Iron Phosphate w/1 coat Polyester Powder
- Zinc Phosphate w/1 coat Polyester Powder
- PermaCoat® - Zinc Phosphate w/1 coat Epoxy Powder Plus 1 coat Polyester Powder



Ameristar® is America's largest manufacturer of ornamental steel fencing. Applying the most extensive surface protection ever used on ornamental steel fencing is one of the reasons for that achievement.

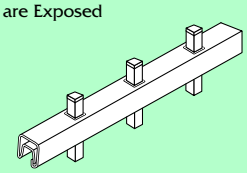
SUPERIOR VALUE

SYMMETRY OF DESIGN

Aegis II® and Aegis Plus® Fence System

AMERISTAR® PERMACOAT® (DOUBLE COATED)

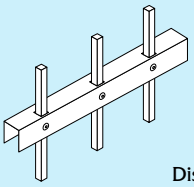
- "Good Neighbor" Design
- Pickets follow ForeRunner™ Centerline
- No Fasteners are Exposed

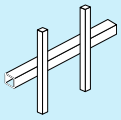


Clean uninterrupted look -
The same pleasing view from either side of fence.

CONVENTIONAL RIVETED OR WELDED

- One-Sided Appearance
- Pickets Leave Gap on Inside
- Rivets Create Visual Distraction



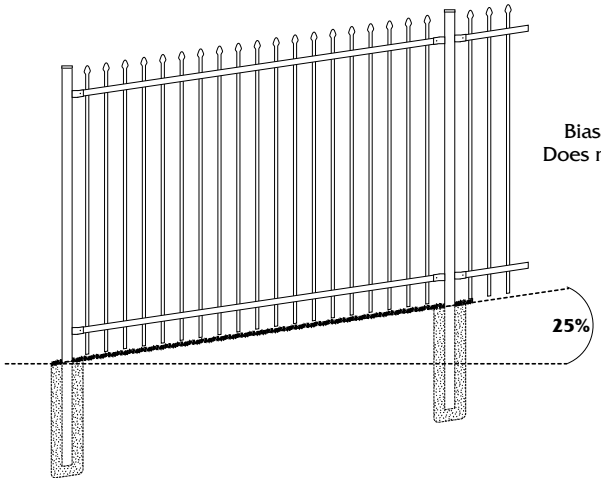


- Pickets on Side of Rail
- Unbalanced look from either side

Disrupted look -
Viewer sees asymmetrical alignment and exposed rivets.

ABILITY TO FOLLOW GRADES

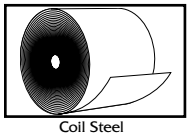
Aegis II® and Aegis Plus® Fence System



Biasability a minimum of 25%.
Does not require special assembly.

TOTAL PROCESS CONTROL

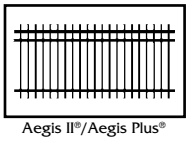
RAW MATERIAL



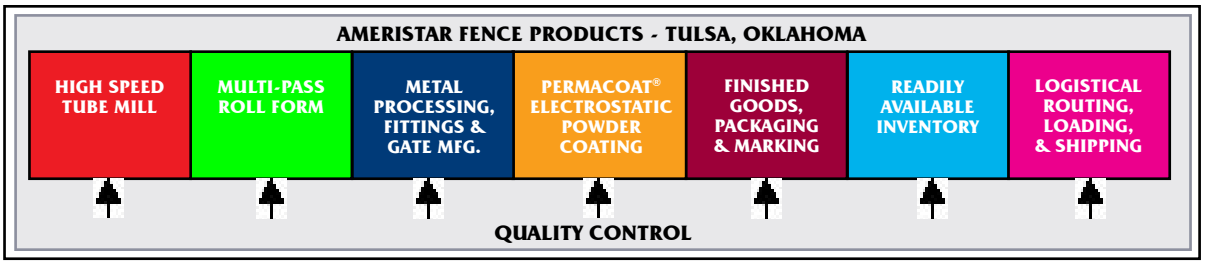
Coil Steel

Ameristar® is America's only ornamental fence manufacturer who controls all manufacturing processes and all quality criteria, from receipt of raw material to completion of finished product, totally inside the factory.

FINISHED PRODUCT



Aegis II®/Aegis Plus®

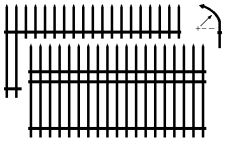


Ameristar's direct manufacturing throughput system ensures a competitive initial cost but a significantly lower long term cost enabled by superior strength and higher quality coating.

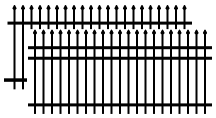
Compare strength, finish, security and value. See why Ameristar® is the world's largest manufacturer of ornamental fencing.

PRODUCT PRESENTATION
AEGIS II® INDUSTRIAL

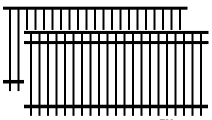
STYLES AVAILABLE



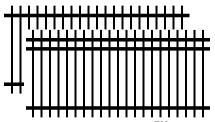
INVINCIBLE™
Style I2 (2-Rail)
Style I3 (3-Rail)



CLASSIC™
Style C2 (2-Rail)
Style C3 (3-Rail)



MAJESTIC™
Style M2 (2-Rail)
Style M3 (3-Rail)



GENESIS™
Style G2 (2-Rail)
Style G3 (3-Rail)

Coppell Post Office
Coppell, TX

Ameristar's Aegis II® industrial steel ornamental fences not only control access, as one would expect from an industrial fence; Aegis II® also enchance the beauty of the facilities and properties they suround.

Milliken University
Decatur, IL

PRODUCT PRESENTATION
AEGIS II® INDUSTRIAL

FedEx
Chicago, IL

Invincible™

Security and protection are combined with the beauty of ornamental fencing in the Invincible™ design. Each picket is spear-topped and extends one foot above the top rail, curving outward to make this fence incapable of being overcome, as the name implies.

Anheuser Busch
Houston, TX

Like all Aegis II® fences, the Invincible™ can follow almost any grade and retain its clean, straight look.

PRODUCT PRESENTATION
AEGIS II® INDUSTRIAL

Allen Water Treatment Plant
Allen, TX

Classic™

Railroad Depot

Ameristar's spear-pointed picket extends through the ForeRunner™ top rail to form the attractive traditional Classic™ design. The picket spear is formed with a 3/8" diameter rounded tip rather than a sharp point.

Charlotte Motor Speedway
Charlotte, NC

PRODUCT PRESENTATION
AEGIS II® INDUSTRIAL

The Majestic™ design is formed to a configuration of contemporary simplicity that maintains a stately look of dignity.

South Lawrence School
Lawrence, MA

Majestic™

Dell Diamond
Austin, TX

PRODUCT PRESENTATION
AEGIS II® INDUSTRIAL

The Genesis™ style offers extended pickets similar to the Classic™, but is differentiated by having a flat rather than spear-shaped picket top. Genesis™ is becoming increasingly popular as a perimeter for apartments and condominiums. Available in both 2 and 3-Rail styles.

Elmwood Water Park
Elmwood, IL

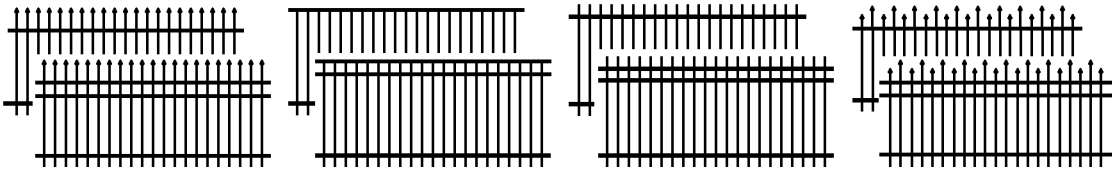
Genesis™

Mini Storage Facility
Atlanta, GA

The Aegis II® Genesis™ can be modified with attractive finials such as the Quad-Flare or Triad (see Page 14).

PRODUCT PRESENTATION
AEGIS PLUS® COMMERCIAL

Styles Available



CLASSIC™
Style C2 (2-Rail)
Style C3 (3-Rail)

MAJESTIC™
Style M2 (2-Rail)
Style M3 (3-Rail)

GENESIS™
Style G2 (2-Rail)
Style G3 (3-Rail)

WARRIOR™
Style W2 (2-Rail)
Style W3 (3-Rail)

"Just the Right Size"

Commercial businesses finally have a high quality,competitively priced alternative to welded steel, aluminum and chain link. Painted steel that has been welded can rust soon after installation; ultra light aluminum fencing can be easily deformed by small climbing loads or impact loads. Aegis Plus® combines strength greater than most industrial steel fences with a surface finish that is essentially maintenance-free. The size also works well for residential users seeking greater strength and a more substantial look without the extremely high cost of heavy industrial fencing.

Aegis Plus™ Warrior™

Aegis Plus™ Classic™

Classic™ & Warrior™ Commercial

The extended spear pointed pickets of the Classic™ & Warrior™ styles lend to their popularity for most traditional ornamental applications.

PRODUCT PRESENTATION
AEGIS PLUS® COMMERCIAL

Majestic™ Commercial

The smooth clean lines of the Majestic™ style make it ideal for many contemporary applications. The Majestic™ style is a popular and safe perimeter for a pool area.

Aegis Plus™ Majestic™

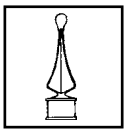
Aegis Plus™ Genesis™

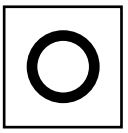
Genesis™ Commercial

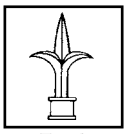
The simple lines of the Genesis™ style with flat-topped extended pickets never detract from the architecture and landscaping that the fence protects.

GENERAL PRODUCT INFORMATION

Adornments for Aegis II®

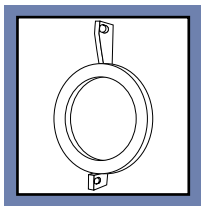

Quad Flare


Ring


Triad


Ball Cap

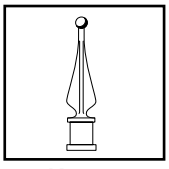
Finials or Rings always add a decorative flair to any Aegis II® fence.

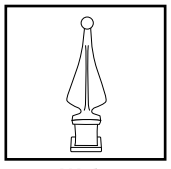


Rings and Finials for Aegis Plus®

Ameristar's unique patented (pending) ring design provides secure and beautiful attachment with no exterior fasteners.

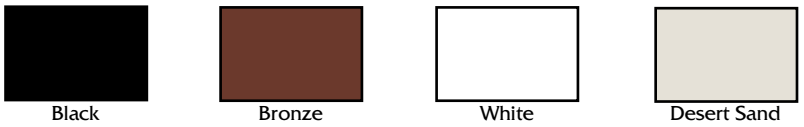
Ameristar's unique flare finial adds a beautiful look and can be attached either of two ways.


Narrow


Wide

GENERAL PRODUCT INFORMATION

Colors

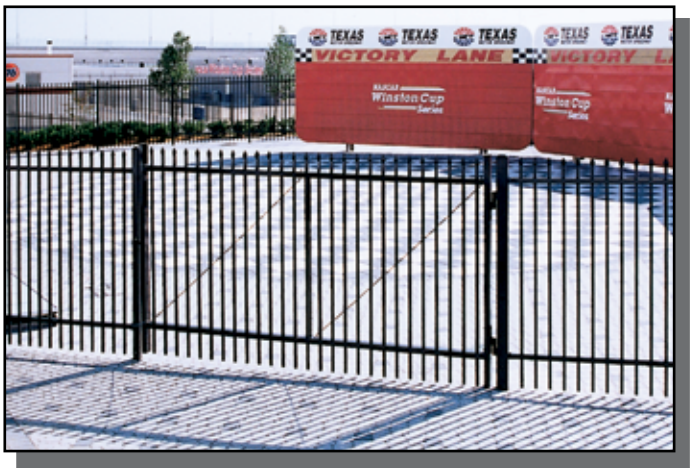


Black | Bronze | White | Desert Sand

Dorney Park
Allentown, PA

Swing Gates

Aegis II® Single and Double Gates are available for maximum openings of 16' and 32' respectively. Aegis Plus® Single and Double Gates are available for maximum openings of 14' and 28' respectively.



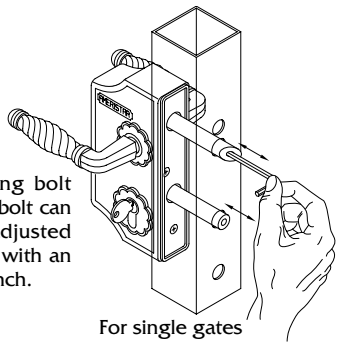
Victory Lane - Texas Speedway
Roanoke, TX

Specification

All Aegis II® and Aegis Plus® Single Pedestrian, Double Pedestrian and Drive Gates shall be welded construction. Electrostatic application of PermaCoat® powder coating system, shall follow the welding operation.

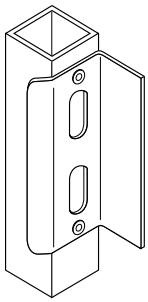
Ameristar® Deadbolt Lock

Eliminates need for weld-on lock boxes



Self-latching bolt and dead bolt can both be adjusted over 3/8" with an Allen wrench.

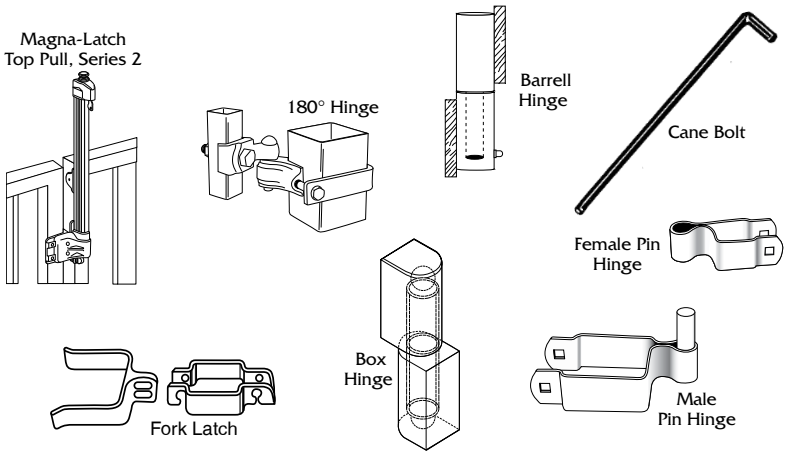
For single gates



Easy-mount striker plate

- Keyed Lock-Both Sides
- Completely Rustproof
- Easy Installation
- No Welding
- Adjustable Bolt Length

Heavy-Duty Hardware



Swing Gate Hinges

Hinge	Size of Gate Leaf (Ft.)
Pin Hinge w/2-1/2" Male	Gate Leaves up to 4' long
Pin Hinge w/3" Male	Gate Leaves from 4' to 6'
Barrell Hinge/Box Hinge	Gate Leaves fit 2-1/2", 3" and 4" Square Posts
180° Hinge	Gate Leaves fit 3" and 4" Square Posts

TRANSPORT™ CANTILEVER GATE SYSTEMS

TransPort™ Cantilever Gate Systems are available for both ornamental and chain link applications. The TransPort™ is an all weather cantilever gate utilizing an aluminum track extrusion with internal roller assemblies. This results in the gate and track system sliding as a single unit.

Dallas/Ft. Worth International Airport
Grand Prairie, TX

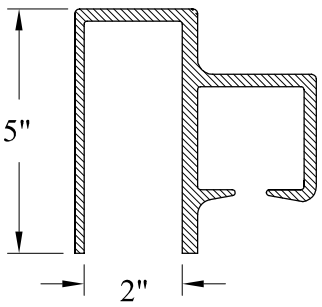
Gate Opening Sizes

Gate Type	Opening	Security	Ornamental	Chain Link
 Double Track	Single	6' Through 36'	6' Through 36'	6' Through 36'
	Bi Parting	12' Through 72'	12' Through 72'	12' Through 72'

Ameristar® provides single track gates for openings up to 20' (or 40' for two gate leaves). With a double track, gates are available to close a maximum opening of 26' (52' for two leaves).

Alignment

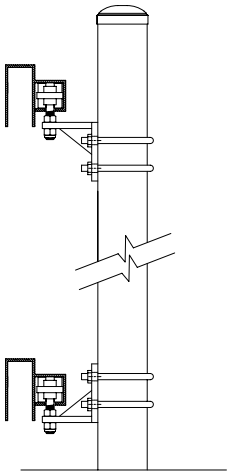
Smooth, easy roll parallels fence line



SINGLE FAST-TRAK™ TOP RAIL
WEIGHT = 5.30 LBS./FT.

Strength

TransPort™ Cantilever Gates offer superior strength as the track is 60% heavier (by weight) than competitors extrusions.



END VIEW
(INSTALLED GATE)

TRANSPORT™ CANTILEVER GATE SYSTEMS

SPECIFICATION

TransPort™ Ornamental Aluminum Cantilever Gate

2.01 MANUFACTURER

The cantilever gate system shall conform to Ameristar® TransPort™ ornamental style **(specify Invincible™, Classic™, Majestic™ or Genesis™ style)**, design **(specify single or double)**, opening **(specify total gate opening in feet)**, height **(total in feet)**, gate direction **(specify direction gate opens from outside looking in)**, with **(specify cross sectional size and gauge of posts)** posts.

2.02 MATERIALS

A. The materials used for cantilever gate framing shall be manufactured from aluminum (Designation 6063-T-6) with a yield strength of 25,000 psi, a tensile strength of 30,000 psi and a standard mill finish. The TransPort™ top track shall be manufactured from aluminum (Designation 6063-T-6) with a yield strength of 25,000 psi, a tensile strength of 30,000 psi and a standard mill finish.

B. TransPort™ cantilever gates shall be filled with 1" x 16 Ga. square aluminum pickets. Pickets, top track and bottom rail shall be predrilled to allow use of pop rivets for picket attachment.

C. Each gate section shall be supplied with truss cables for proper bracing.

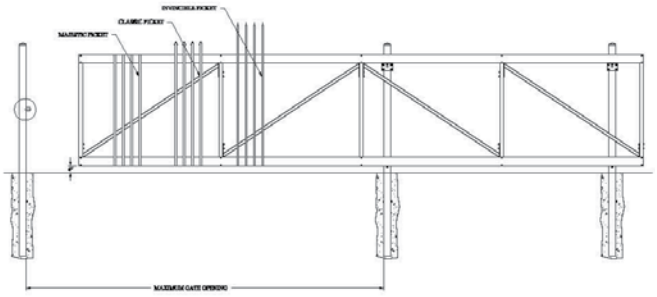
D. Two upper suspension rollers and two lower guide rollers shall be included with each gate.

2.03 FABRICATION

A. Components shall be precut to specified lengths.

B. All fastener holes shall be predrilled.

C. Completed framing components shall be tested for alignment and fit at the factory prior to shipping.



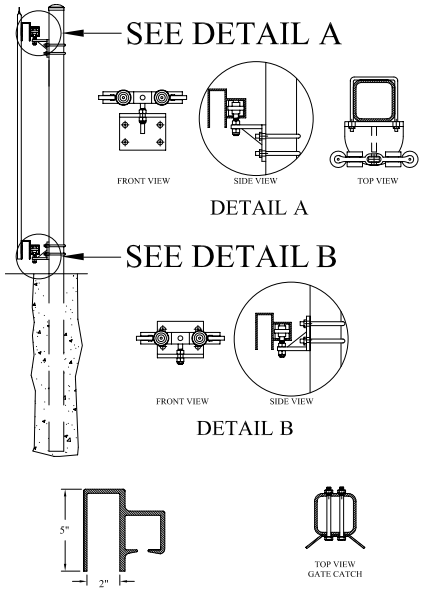
Tulsa International Airport
Tulsa, OK

TransPort™ Track Hardware

Ameristar's unique single mainframe truck roller makes it the strongest truck assembly available in the industry.

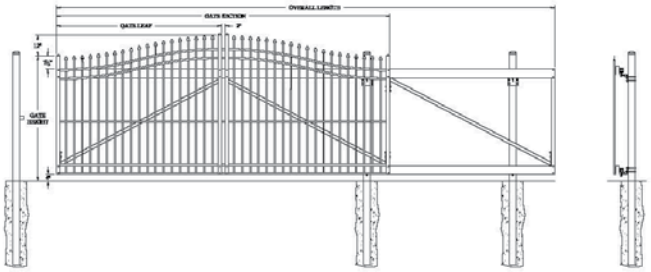
Features

- Hot-Dip Galvanized
- Extra Heavy-Duty
- Solid Bar Truck Assembly
- With U-Bolts for either Round or Square Posts

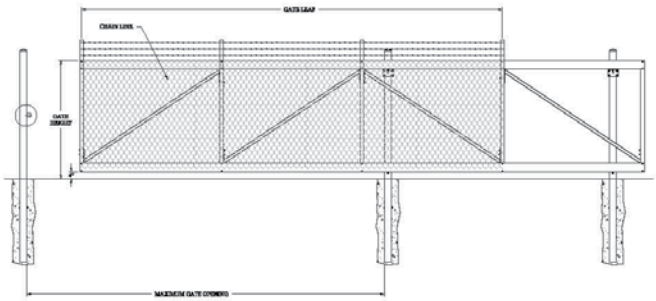


Other Fine Ameristar® Gate Systems

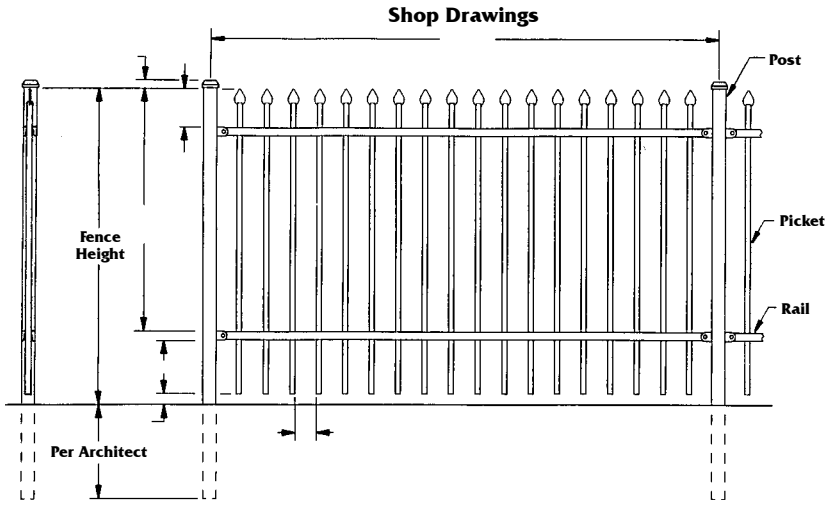
TransPort™ Estate™
Ornamental Cantilever Gates



TransPort™ PermaCoat® and GalvOnAll™
Chain Link Cantilever Gates



COMPREHENSIVE PRODUCT INFORMATION



Framework

System	Pickets	Rails	Posts
Aegis II™ Industrial	1" x 14 GA.	1-3/4" * x 14 GA.	See Table Below
Aegis Plus™ Commercial	3/4" x 16 GA.	1-1/2" * x 14 GA.	See Table Below

*** Special Roll-Formed ForeRunner™ Shape**

Wind Loading

Height (FT)	Rail Length	Post Size	Aegis II™ Wind Load Capacity Factor (PSF)	Aegis Plus™ Wind Load Capacity Factor (PSF)	Typical Wind Load Capacity (mph)
4	6	2-1/2" x 12 GA.	102.3	127.8	236
		3" x 12 GA.	122.8	152.6	259
	8	2-1/2" x 12 GA.	77.0	93.2	205
		3" x 12 GA.	92.2	111.2	224
5	6	2-1/2" x 12 GA.	65.5	82.1	189
		3" x 12 GA.	78.6	98.0	203
	8	2-1/2" x 12 GA.	49.3	59.8	164
		3" x 12 GA.	59.0	71.3	179
6	6	2-1/2" x 12 GA.	45.5	57.1	133
		3" x 12 GA.	54.6	68.2	146
	8	2-1/2" x 12 GA.	34.2	41.5	116
		3" x 12 GA.	41.0	49.6	127
7	6	2-1/2" x 12 GA.	33.4	42.0	114
		3" x 12 GA.	40.0	50.0	125
	8	2-1/2" x 12 GA.	25.0	30.4	99
		3" x 12 GA.	30.0	36.3	108
8	6	2-1/2" x 12 GA.	25.6	32.2	100
		3" x 12 GA.	30.7	38.4	110
	8	2-1/2" x 12 GA.	19.2	23.4	87
		3" x 12 GA.	23.0	27.9	95
		4" x 12 GA.	30.6	36.8	110
9	6	4" x 12 GA.	32.0	N/A	113
10	6	4" x 12 GA.	28.7	N/A	107

Note: Mph calculated using ANSI/ASCE 7-95, "American Society of Civil Engineers Minimum Design Loads for Buildings and other Structures." Exposure Category B (urban and suburban areas with closely spaced obstructions having the size of single-family dwellings or larger). For wind loading applicable to a particular specification, consult the appropriate Building Code.

Detailed Product Data

- **Architectural Binder**

The Classic™ series drawing above is one of several Aegis II® and Aegis Plus® shop drawings contained in the Architectural Binder, which is available upon request. Ameristar's PermaCoat® Color Chain Link Fencing specifications and drawings are also included.

- **Compact Disc**

Ameristar's ornamental and color chain link fencing technical information is also available on CD format. On the new CD, architects will find all the details they require on Ameristar's ornamental fence and gate systems as well as relevant data on PermaCoat® color chain link framework for commercial and industrial applications.

- **Internet Website**

The Ameristar® architectural website (http://www.ameristarfence.com) enables the user to browse the entire Ameristar® product line. The site is complete with photos, drawings, specifications and installation procedures.

Ameristar's electronic media enable architects and specifiers to simply download specification information directly into the appropriate section of their CSI-formatted project specifications; they also enable the direct downloading of product drawings onto project blueprints.

CONSTRUCTION SPECIFICATION

SECTION 02825 - ORNAMENTAL METAL FENCING SYSTEM

Aegis II® - Industrial Weight

PART 1 - GENERAL

1.01 WORK INCLUDED

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

1.02 RELATED WORK

Section 022 _ _ - Earthwork
Section 030 _ _ - Concrete

1.03 SYSTEM DESCRIPTION

The manufacturer shall supply a total industrial ornamental steel fence system of the Ameristar® Aegis II® **(specify Classic™, Majestic™, Genesis™ or Invincible™)** 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 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 Calculations 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 submittal package shall be provided 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 industrial ornamental steel fence system shall conform to Ameristar® AEGIS II®, **(specify Classic™, Majestic™, Genesis™ or Invincible™)** **(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 prior to forming, shall conform to the requirements of ASTM A924/A924M, 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.

B. 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 seperate 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 **(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.

C. Material for fence pickets shall be 1" square x 14 Ga. tubing. The cross-sectional shape of the rails shall conform to the manufacturer's ForeRunner™ 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., except for Invincible™ style 6' long which shall be spaced 4.98" o.c. Picket retaining rods shall be 0.125" diameter galvanized steel. Posts shall be a minimum of 2-1/2" square x 12 Ga. High quality PVC grommets shall be supplied to seal all picket-to-rail intersections.

2.03 FABRICATION

A. Pickets, rails and posts shall be pre-cut 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 pre-drilled holes in each picket, thus completing the panel assembly.

C. Completed panels shall be capable of supporting a 600 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. Swing gates shall be fabricated using AEGIS II® 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. 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 II® 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.

Table 1 - Coating Performance Requirements

Quality Characteristics	ASTM Test Method	Performance Requirments
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 2 - Post Spacing Requirements

Span	6' Nominal (67-3/4" Rail)				8' Nominal (92-5/8" Rail)			
Post Size	2-1/2"	3"	2-1/2"	3"	2-1/2"	3"	2-1/2"	3"
Bracket	Rigid		Swivel		Rigid		Swivel	
Straight Picket Post Settings +/- 1/2" O.C.	71-1/2"	72"	73"	73-1/2"	96"	96-1/2"	97-1/2"	98"
Curved Picket Post Settings +/- 1/2" O.C.	75"	75-1/2"	76-1/2"	77"	94-1/2"	95"	96"	96-1/2"

CONSTRUCTION SPECIFICATION

SECTION 02825 - ORNAMENTAL METAL FENCING SYSTEM

Aegis Plus® - Commercial Weight

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 022 _ _ - Earthwork
Section 030 _ _ - Concrete

1.03 SYSTEM DESCRIPTION

The manufacturer shall supply a total commercial ornamental steel fence system of the Ameristar® Aegis Plus® **(specify Classic™, Majestic™, Genesis™ or 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 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 submittal package shall be provided 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®, **(specify Classic™, Majestic™, Genesis™ or 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 prior to forming, shall conform to the requirements of ASTM A924/A924M, 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.

B. 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 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.

C. Material for fence pickets shall be 3/4" square x 16 Ga. 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 14 Ga. 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 12 Ga. High quality PVC grommets shall be supplied to seal all picket-to-rail intersections.

2.03 FABRICATION

A. Pickets, rails and posts shall be pre-cut 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 pre-drilled 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. Swing 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. 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.

Table 1 - Coating Performance Requirements

Quality Characteristics	ASTM Test Method	Performance Requirments
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 2 - Post Spacing Requirements

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

Availability

Shipping

Aegis II™ and Aegis Plus™ Industrial ornamental fencing components (e.g., pickets, rails, etc.) and TransPort™ cantilever gates are carefully packaged in heavy duty cardboard boxes to ensure the most economical damage-free shipping.

Ordering Information

To order, simply specify the fence or gate design series, color, and height desired. Then figure and provide the quantities needed. Contact Ameristar® for the nearest distributor or if any other assistance is needed.

Warranty

A written 10 year limited warranty is extended on Ameristar's® Aegis II™ and Aegis Plus™ fencing systems. Call Ameristar® today for a copy.

Maintenance

Little or no maintenance is required for the fence and gate systems supplied by Ameristar®. The PermaCoat® coated galvanized metal in Aegis II™ and Aegis Plus™ and the polyester coated aluminum in TransPort™ gates will remain corrosion free for years to come. If pickets or rails are damaged by accidental impact, the affected components can be easily replaced. Damages to coated surfaces can be readily covered with commercially available spray enamels.

DISTRIBUTED BY:

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Rev. 10/06

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