AMERISTAR®

Echelon II™

Industrial Ornamental Aluminum Fence and Gates

The Higher Level

Maintenance-Free Polyester Finish
Over High Strength Aluminum

www.ameristarfence.com

AMERISTAR®

The Company Behind The Product

Ameristar Fence Products
Tulsa, Oklahoma

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 architectural metal 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?

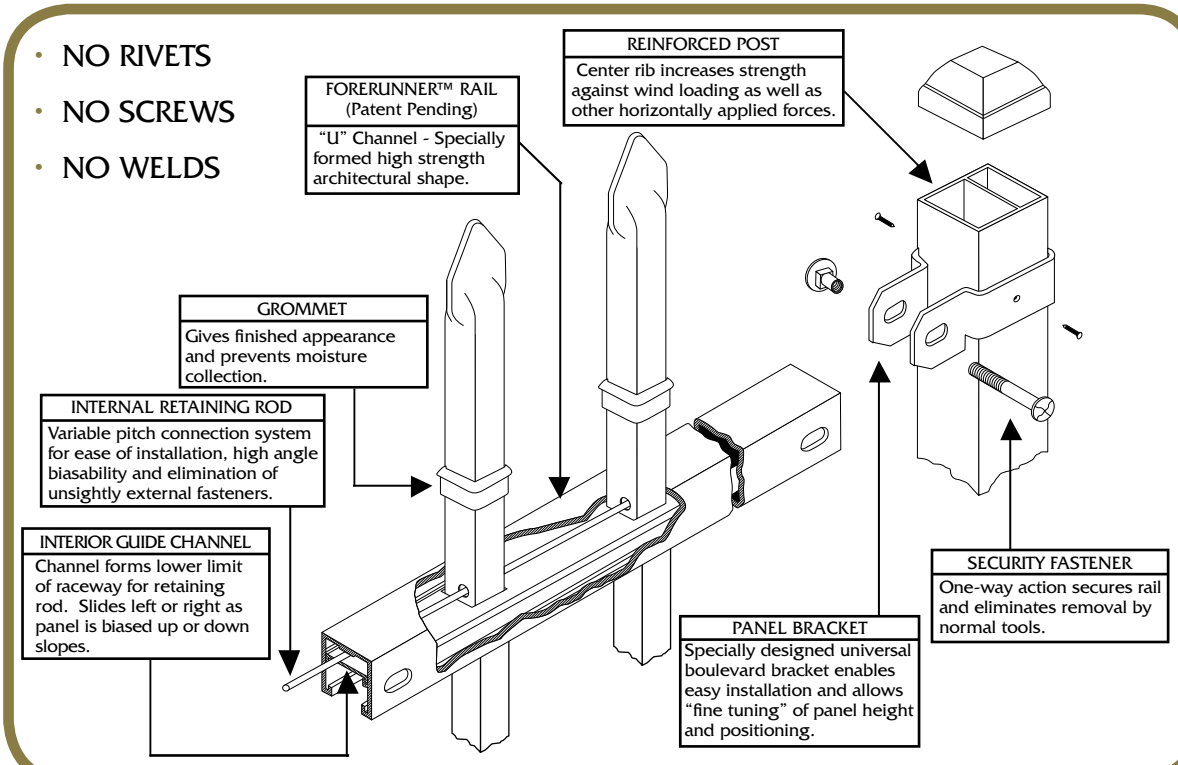
- Does the company merely meet minimum requirements or does it rise above?
- Do the company's products seem "just like all the others" or do they have added value?

Echelon II™

The Higher Level of Aluminum Fences

Echelon II™ - A revolutionary fence system of aluminum posts, framework and mounting accessories that is 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 Echelon II™ fence has the revolutionary ForeRunner™ rail.

- NO RIVETS
- NO SCREWS
- NO WELDS



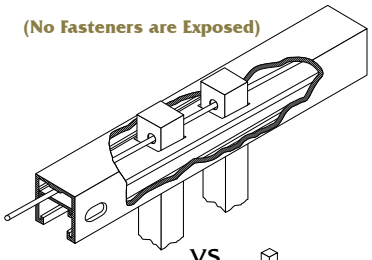
AMERISTAR® ECHELON II™
WITH FORERUNNER™ RAIL & RETAINING ROD

SECURITY

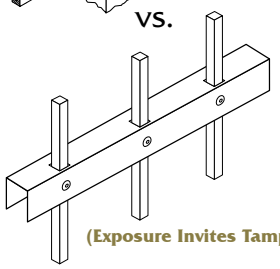
ForeRunner™ Rail with Enclosed Retaining Rod

Attachment cannot be compromised.

(No Fasteners are Exposed)



VS.



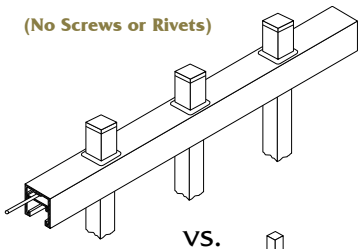
(Exposure Invites Tampering)

BEAUTY

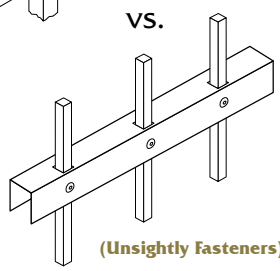
"Good Neighbor Design" Rod Follows ForeRunner™ Centerline

Clean uninterrupted look.

(No Screws or Rivets)



VS.

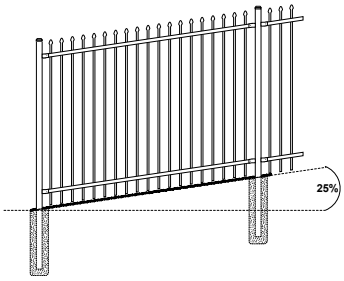


(Unsightly Fasteners)

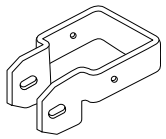
FUNCTIONALITY

Biasability a minimum of 25%

Does not require special assembly.

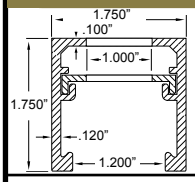
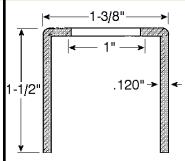
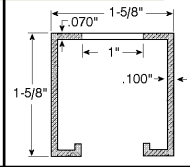


Universal Boulevard Bracket



Enables accurate adjustment during installation

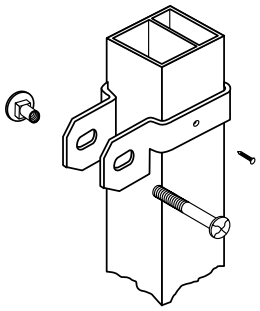
RAIL STRENGTH

ForeRunner™ (Aluminum) Echelon II™	Structural Parameters			U-Channel (Steel)	U-Channel (Aluminum)
	Profile of the Architectural Shape of the Rail *Vertical Design Loads are per rail; for capacity of fence panel, multiply by number of rails.				
.120/.100	T_{eff} = Effective Wall Thickness (IN)			.120	.100/.070
.2370	S_v = Section Modulus (IN) Vertical			.0938	.1350
.421	S_h = Section Modulus (IN) Horizontal			.210	.260
418#	6' Span	Vertical Load Data PV_f = Ultimate Vertical	6' Span	- - - - -	262#
314#	8' Span		8' Span	229#	- - - - -
742#	6' Span	Horizontal Load Data PH_f = Ultimate Horizontal	6' Span	- - - - -	482#
556#	8' Span		8' Span	438#	- - - - -
276#	6' Span	*Vertical Load Data PV_d = Vertical Design Load @ .66 F	6' Span	- - - - -	157#
207#	8' Span		8' Span	151#	- - - - -
490#	6' Span	* Horizontal Load Data PH_d = Horizontal Design Load @ .66 F	6' Span	- - - - -	303#
367#	8' Span		8' Span	289#	- - - - -

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

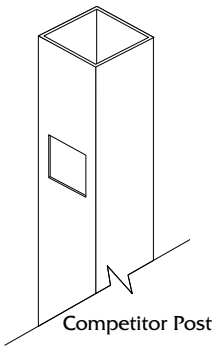
POST STRENGTH & SECURITY

A comparison of the Echelon II™ reinforced post with standard punched posts used by other aluminum fence manufacturers shows several Echelon II™ advantages.



Echelon II™ Post

- The Echelon II™ post is made stronger by the reinforcing web; the conventional post is weakened by removing material from it's cross-section.
- Echelon II™ requires only one non-punched post; the punched system requires four different posts (line, end, corner, and gate).



Competitor Post

- Punched holes allow moisture build-up and potential freeze expansion.
- Echelon II™ boulevard brackets allow for fine tuning of fence alignment.
- The wrap-around bracket, secured to the rail with Ameristar's tamperproof fastener, ensures far greater security than the single screw in punched posts.

SUPERIOR FINISH

Ameristar's production facilities include a state-of-the-art polyester powder coating system providing Echelon II™ fences with a finish that is far superior to other coatings in durability and scratch-resistance. Powder coating has become the fastest growing form of finishing technology. It does not emit hazardous volatile organic compounds as is the case with wet paints. The Echelon II™ fence components can endure over 1,000 hours of salt spray testing; proving the claim of long-lasting durability. With Echelon II™ Industrial Aluminum, a maintenance-free, enviromentally-friendly fence is guaranteed.

DETAILED PRODUCT DATA

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.

• Architectural Binder

The Classic™ series drawing to the right is one of several Echelon II™ shop drawings contained in the Architectural Binder, which is available upon request. Specifications and drawings for Ameristar's Impasse™ Palisade Security Fence Barrier, Aegis II™ and Aegis Plus™ Ornamental Steel Fence, and PermaCoat® Color Chain Link Fence are also included.

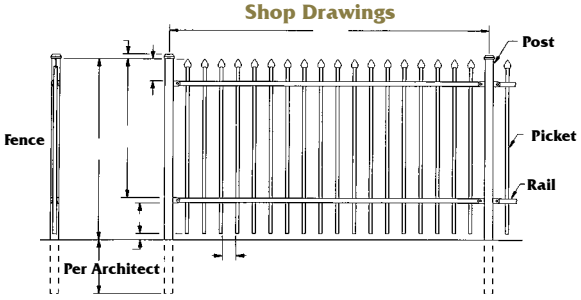
• Compact Disc

All of Ameristar's ornamental, security, and color chain link fence 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 the multi-stage electrostatic coating process 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.

Shop Drawings



Framework

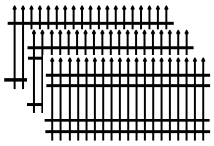
System	Pickets	Rails	Posts
*Echelon II™ Industrial	1" x 1"	1-3/4" x 1-3/4"	*2-1/2" x 2-1/2"

*NOTE: Larger post (3" Sq. & 4" Sq. are also available). Follow post recommendation in Wind Loading table below).

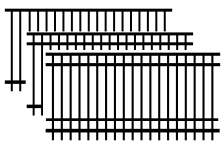
Wind Loading

Height (FT)	Rail Length	Post Size	Echelon II™ Wind Load Capacity Factor (PSF)	Typical Wind Load Capacity (mph)
4	6	2-1/2" Square	112	206
		3" Square	213	285
	8	2-1/2" Square	84	178
		3" Square	160	246
5	6	2-1/2" Square	76	170
		3" Square	145	235
	8	2-1/2" Square	57	147
		3" x Square	109	203
6	6	2-1/2" Square	52	141
		3" Square	99	194
	8	2-1/2" Square	40	123
		3" Square	76	171
7	6	2-1/2" Square	38	120
		3" Square	73	166
	8	2-1/2" Square	28	104
		3" Square	55	144
8	6	2-1/2" Square	29	105
		3" x Square	56	145
	8	2-1/2" Square	22	91
		3" Square	42	126
		4" Square	78	172
9	6	4" Square	82	176
10	6	4" Square	66	159

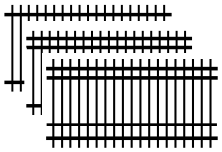
STYLES



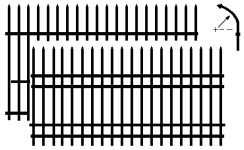
CLASSIC™
Style C2 (2-Rail)
Style C3 (3-Rail)
Style C4 (4-Rail)



MAJESTIC™
Style M2 (2-Rail)
Style M3 (3-Rail)
Style M4 (4-Rail)



GENESIS™
Style G2 (2-Rail)
Style G3 (3-Rail)
Style G4 (4-Rail)



INVINCIBLE™
Style I3 (3-Rail)
Style I4 (4-Rail)

COLORS

Refer to Color Chip samples for actual color

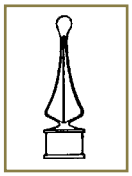
Black

Bronze

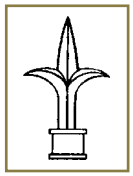
White

Desert Sand

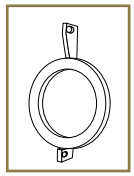
ADORNMENTS



Quad Flare



Triad



Ring

Ball Cap

Classic™

Echelon II™ Classic™ style ornamental fences feature the traditional extended picket culminating with an arrow-shaped spear point that conveys a subtle warning message to would-be intruders.

The attractive Classic™ style is structurally enhanced by the addition of a third ForeRunner™ rail which provides greater strength and enables the use of greater height to discouage unauthorized entry.

Majestic™

The contemporary Echelon II™ Majestic™ style utilizes a flush top rail to produce the stately and streamlined look that blends well with flowers, shrubbery, and trees used in border landscapes.

The three-rail Majestic™ fence shown below works well with brick columns and enhances the look of the brick building it surrounds. The fence, masonry column and building compliment each other.

Genesis™

The Echelon II™ Genesis™ style highlights the sleek lines of unaltered square pickets reminiscent of solid vertical bar fences. The extended flat-topped tip does not detract from architecture or landscape.

The basic Genesis™ ornamental fence (three-rail version shown below) is an ideal perimeter product for virtually any commercial or industrial application.

Invincible™

The imposing Echelon II™ Invincible™ style features an outwardly curving picket to warn potential intruders and make access by climbing virtually impossible.

The Invincible™ is the only aluminum industrial fence that offers the increased security of the unique anti-climb curved picket.

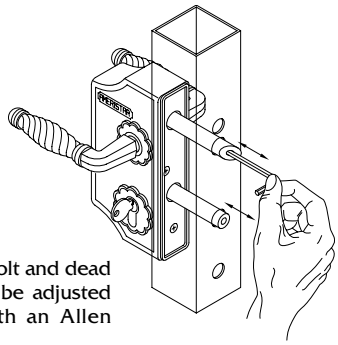
SWING GATE SYSTEMS

Specification

All Echelon™ Single Pedestrian, Double Pedestrian and Drive Gates shall be welded construction. Gate ends shall be 0.250" thick; pickets used for welded gates shall be 0.110" thick. Electrostatic application of Ameristar's powder coating system shall follow the welding operation. Echelon™ Single and Double Gates are available for openings up to 16' and 32' respectively.

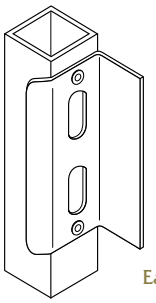
Ameristar® Deadbolt Lock

Eliminates need for weld-on lock boxes



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

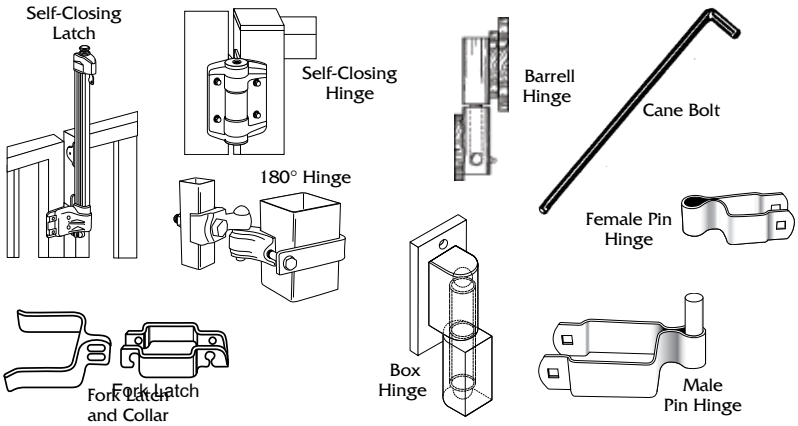
For single gates



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

Easy-mount striker plate

Heavy-Duty Hardware



Gate Hinge Selection

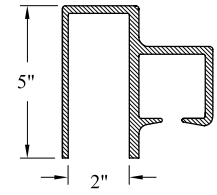
Hinge	Size of Gate Leaf (Ft.)
Pin Hinge w/2-1/2" Male	Gate Leaves up to 4' long
Pin Hinge w/3" Male	Gate Leaves from 4' to 6'
Barrell Hinge/Box Hinge	All Gate Leaves; fits 2-1/2", 3" and 4" Square Posts
180° Hinge	All Gate Leaves; fits 3" and 4" Square Posts

TRANSPORT™ CANTILEVER GATE SYSTEMS

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

Strength & Alignment

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



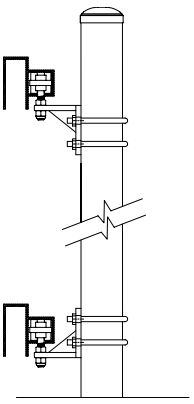
SINGLE FAST-TRAK™ TOP RAIL
WEIGHT = 5.30 LBS./FT.

Smooth, easy roll parallels fence line

Gate Opening Sizes

TransPort® Cantilever Gates contain double-track framing, full tracks top and bottom. Ameristar's double-track cantilevers are available for openings up to 36'. Bi-parting cantilevers are available for openings up to 72'.

End View
(INSTALLED GATE)



CONSTRUCTION SPECIFICATION

SECTION 02825 - CANTILEVER GATE SYSTEM

TransPort™ - Aluminum Cantilever

2.01 MANUFACTURER

The cantilever gate system shall conform to Ameristar®TransPort™ ornamental style **(specify Classic™, Majestic™, Genesis™ or Invincible™ 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 material (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 12 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.

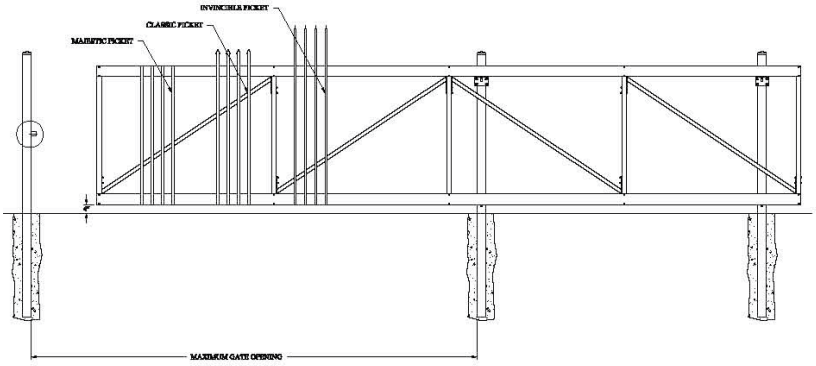
D. Two upper suspension rollers and two lower guide rollers shall be included with each gate.

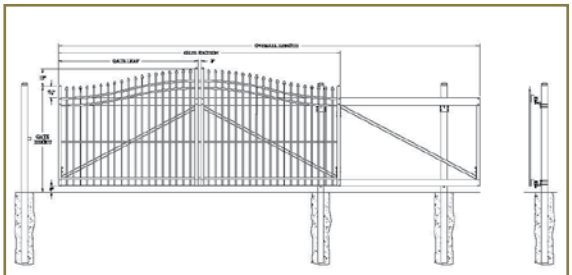
2.03 FABRICATION

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.





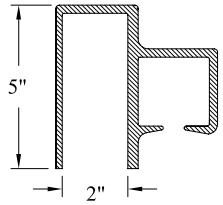
Ornamental Aluminum
Estate™ Cantilever Gates

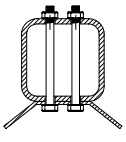
TransPort™ Track Hardware

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

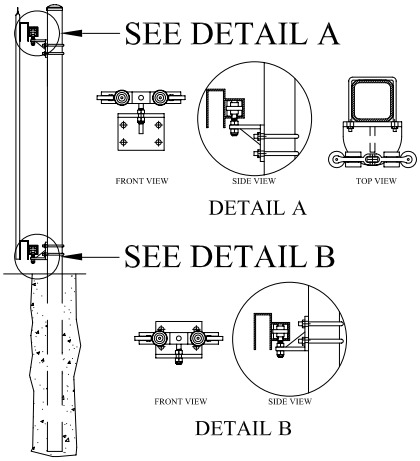
Features

- Hot-Dip Galvanized
- Extra Heavy-Duty
- U-Bolts for either Round or Square Posts





TOP VIEW
GATE CATCH



CONSTRUCTION SPECIFICATION

SECTION 02825 - ORNAMENTAL METAL FENCE SYSTEM

Echelon II™ - Industrial Aluminum

PART 1 - GENERAL

1.01 WORK INCLUDED

The contractor shall provide all labor, materials and appurtenances necessary for installation of the industrial ornamental aluminum 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 industrial ornamental aluminum fence system of the Ameristar® Echelon 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 B117 - Practice for Operating Salt-Spray (Fog) Apparatus. **ASTM B221** - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes. **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 industrial ornamental aluminum fence system shall conform to Ameristar® Echelon 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. Aluminum material for fence framework (i.e., tubular pickets, rails and posts) shall conform to the requirements of ASTM B221. The aluminum extrusions for posts and rails (outer channel) shall be Alloy and Temper Designation 6005-T5. The aluminum extrusions for pickets and rail inner slide channels shall be Alloy and Temper Designation 6063-T5.

B. The manufactured framework shall be subjected to the Ameristar® thermal stratification coating process (high-temperature, in-line, multi-stage, multi-layer) including, as a minimum, a six-stage pretreatment/wash and an electrostatic spray application of a polyester finish. 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 or white). 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 0.065" thick extruded 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. The top wall of the outer channel of the rail shall be 0.100" thick; the side walls shall be 0.120" thick for superior vertical load strength. The inner slide channel of the rail shall be 0.080" thick. 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 with a perimeter wall thickness of 0.080" and an interior reinforcing web thickness of 0.080". High quality PVC grommets shall be supplied to seal all picket-to-rail intersections.

D. All fasteners shall be stainless steel. Bracket to rail attachments shall be made using specially designed one-way tamperproof security bolts with inverted "t-nuts". Bracket to post connections shall be made using self-drilling hex-head screws.

E. Aluminum castings shall be used for all rings, post caps, finials, and miscellaneous adornments.

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. The rail inner slide shall be fully inserted into the rail outer channel to form the raceway for the internal retaining rod. 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 raceway of the two-part 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 300 lb. load (applied at midspan) without permanent deformation. Panels shall be biasable to a 25% change in grade.

D. Gates shall be fabricated using ForeRunner™ rail material and gate ends having the same outside cross-section (1.75" Square) as the rail. Gate ends shall be 0.125" thick; gate pickets shall be 0.080" thick. 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. Echelon 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 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 1,000 hours (Scribed per D1654; failure mode is 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 ± ½" O.C.	71-1/2"	72"	73"	73-1/2"	96"	96-1/2"	97-1/2"	98"
Curved Picket Post Settings ± ½" O.C.	75"	75-1/2"	76-1/2"	77"	94-1/2"	95"	96"	96-1/2"

Availability

Shipping

Echelon II™ Industrial Ornamental Fence 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 lifetime limited warranty is extended on Ameristar's Echelon II™ fence systems. Call Ameristar® for a copy.

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Maintenance

Little or no maintenance is required for the fence and gate systems supplied by Ameristar®. The polyester coated aluminum in Echelon II™ 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.

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