A1 AMERICAS

Perimeter Protection Systems built for real world security

Manufactured in Houston

A1 ARC PRIMA

Welded Wire Architectural Fence System

SEC 32 31 16 Welded Wire Fences and Gates

IMPORTANT NOTE TO THE SPECIFIER

This document is a guide specification template designed to be edited by the Architect, Design Engineer, or Specifier to meet specific project demands, site configurations, and aesthetic choices.

Editing Instructions:

- **Editing Instructions:** Selectable parameters, dimensions, and project-specific choices are indicated by brackets **[ ]**. Retain the correct option and delete unnecessary text.
- **Specifier Guidance Notes:** Explanatory notes to assist in product selection are printed in bold text and designated with asterisks *****.
- **Final Cleanup:** For final document compilation, all brackets, bracketed options, and specifier guidance notes must be deleted.

Manufacturer Disclaimer:

A1 Americas provides this document as a technical guide and does not warrant that these specifications are universally complete or applicable to all security architectures. It remains the sole responsibility of the Specifier to review, validate, and assure that the selection of this fence and gate system is structurally appropriate for the local site conditions, wind load criteria, and security mandates.

PART 1 - GENERAL

1.01 - SUMMARY

A. Section Includes:

1. The Arc Prima commercial welded wire architectural fence system.
2. Galvanized steel wire mesh panels with structural V-bends.
3. Galvanized structural steel fence posts in **[Square] [Circular] [H-Profile]** sections.
4. System-specific high-security brackets, fittings, and tamper-resistant fastening hardware.

B. Related Requirements:

***** **Delete sections below not relevant to this specific project.** *****

1. Section 03 30 00 - Cast-in-Place Concrete: Concrete footings for support of fence posts.
2. Section 31 20 00 - Earthwork: Site grading and post-hole excavation.

1.02 REFERENCES

A. ASTM International (ASTM):

1. ASTM F2919/F2919M - Standard Specification for Welded Wire Mesh Fence Fabric (Metallic-Coated or Polymer Coated) with Variable Mesh Patterns or Meshes Greater than 6 in.2 [3871 mm2] in Panels
2. ASTM A641/A641M - Standard Specification for Zinc–Coated (Galvanized) Carbon Steel Wire
3. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process
4. ASTM A90/A90M - Standard Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings

5. A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
6. ASTM A853 - Standard Specification for Steel Wire, Carbon, for General Use
7. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
8. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus
9. ASTM D3359 - Test Method for Measuring Adhesion by Tape Test
10. ASTM D523 - Test Method for Specular Gloss
11. ASTM D2794 - "Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
12. ISO 2178 - Non-Magnetic Coatings on Magnetic Substrates—Measurement of Coating Thickness—Magnetic

1.03 SYSTEM PERFORMANCE & STRUCTURAL REQUIREMENTS

A. Structural Performance: Provide fence framework and panels capable of withstanding the structural loads and environmental stresses within the limits indicated:

1. Wind Load: System capable of withstanding a basic design wind speed of **[90 MPH] [100 MPH] [115] MPH** in accordance with ASCE 7, corresponding to a uniform pressure of 30 lbf/sq. ft. acting inward or outward without permanent deformation.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's technical descriptions, material configurations, and certified finish/coating specifications for all panels, posts, brackets, and hardware.
B. Shop Drawings: Submit complete layout elevations, plan views, and sectional details. Include post spacing dimensions, concrete footing depths, ground clearance data, and specific hardware attachment profiles.
C. Verification Samples: Provide two 6-inch by 6-inch finished panel samples and color chips representing the selected factory-coated color finish for Architect's validation.
D. Certificates: Manufacturer's certification demonstrating that all materials strictly comply with specified ASTM configurations and performance attributes.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: System components must be obtained from a single, unified source to ensure complete physical property consistency and aesthetic uniformity.
B. Installer Qualifications: Firm must possess documented experience successfully executing installations of welded wire mesh architectural fencing systems of similar scale and scope.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Acceptable System: **Arc Prima Weldmesh System.**

B. Manufacturer:

A1 Americas Security Group LLC
9727 Tanner Road, Houston, TX 77041
Phone: +1 (281) 734-6999 | Website: www.a1americas.com

2.02 FENCE PANELS

A. Material: Heavy-duty galvanized high-tensile steel wire mesh fabric conforming to ASTM F2919/F2919M.

B. Physical Characteristics:

1. Wire Sizing: Standard 6 gauge (0.192 inch / 4.88 mm) core wire size. **[Custom structural option: _____ gauge core wire size]**
2. Wire Tensile Strength: 75 to 105 Ksi.
3. Mesh Pattern Configuration: **[2 inch x 6 inch] [2 inch x 8 inch]** spacing.
4. Standard Panel Width: **[8 feet] [10 feet] [For custom size: input in the multiple of 2inch]**
5. Panel Height: **[4 feet] [5 feet] [6 feet] [7 feet] [8 feet] [9 feet] [10 feet]** overall height.
6. Structural Rigid V-Bends: Panels must feature integrated horizontal structural V-bends to ensure planar rigidity, matching the height metrics as follows:
   - **[2 V-Bends for 4 feet panel height]**
   - **[2 V-Bends for 5 feet panel height]**

- **[3 V-Bends for 6 feet panel height]**
- **[3 V-Bends for 7 feet panel height]**
- **[4 V-Bends for 8 feet panel height]**
- **[5 V-Bends for 10 feet panel height]**

2.03 FENCE POSTS

A. Material: Carbon steel hollow structural sections conforming structurally to ASTM A500 Grade B and galvanized post-fabrication.

B. Post Profiles & Sizes:

***** **Select the post profile matching structural site wind-load metrics.** *****

1. Square Section Post: Hollow square section pipe, dimensioned from **[2 inch] [2.5 inch] [3 inch] [4 inch]** square, complete with a top-fitted post cap.
2. Circular Section Post: Circular hollow section pipe, sized at **[2-3/8 inch] [3 inch] [3-1/2 inch]** outside diameter, complete with a top-fitted post cap.
3. H-Profile Section Post: Hollow H-profile structural layout, sized at 3 inch x 2 inch x 14ga thick pre galvanized steel, complete with factory-integrated panel recesses and a top-fitted PVC cap. Minimum zinc coating weight of 0.4 oz/sq. ft..

C. Post Lengths: Available in structural lengths of **[66 inch] [84 inch] [96 inch] [114 inch] [132 inch] [162 inch]** to support the chosen fence height and footing mandates.

D. Post Mounting Configurations: **[Embedded in-ground footing] [Base Plate Surface Mounted].**

E. Post Center-to-Center Spacing: Line posts shall be spaced uniformly in strict accordance with the manufacturer's structural layout data to accommodate post profile widths and chosen mounting configuration.

2.04 FITTINGS, ACCESSORIES, AND HARDWARE

A. System Brackets: Provide factory-engineered bracket assemblies matching the designated post profiles in accordance with the Hardware Selection Matrix below.

***** **RETENTION NOTE: Retain only the brackets matching the project's post selections and delete the remaining options.** *****

1. [Spider Bracket]: Heavy-duty face-mounting structural bracket fabricated from a minimum 12 gauge thick steel, engineered to tightly clamp and secure standard 6 gauge core wire panels against **[Hollow Square Sections] [H-Profile Section]** without allowing vertical or planar slippage.
2. [Wrap-Around Square Bracket]: High-security wrap-around style bracket fabricated from a minimum 14 gauge thick steel, engineered for explicit compatibility to tightly clamp and secure standard 6 gauge core wire panels.
3. [Omega Shape Bracket]: High-security wrap-around style bracket fabricated from a minimum 14 gauge thick steel, engineered for explicit compatibility to tightly clamp and secure standard 6 gauge core wire panels.

Table 1. Hardware Selection Matrix

Selected Post Profile Type	**Compatible Bracket Option**	**Required Fastener Length**
Square Section Post	Spider Bracket (Standard)	Post size + 1/2 inch
	Wrap-Around Square Bracket	1-1/2 inch
H-Profile Post	Spider Bracket (Standard)	1-1/2 inch
Circular Post	Omega Shaped Bracket	1-1/2 inch

B. Hardware:

1. Fasteners: Heavy-duty 5/16-inch diameter stainless steel mushroom-head security bolts. Fastener length shall be **[___inches]**.
2. Security Locking: Every bolt assembly must be backed by a matching 5/16-inch high-security stainless steel tamper-proof nut and industrial washer to prevent unauthorized disassembly or bracket release.
3. Coating: All clamp bodies, security collars, and structural bracket systems shall receive factory-applied polyester powder coating matching the selected fence framework color to ensure unified system aesthetics and maximum corrosion protection.

2.05 FACTORY FINISH

A. Duplex Coating Architecture: Framework and mesh elements must undergo a comprehensive multi-stage surface preparation, followed by an electrostatic application of high-durability polyester powder coating to a minimum dry film thickness of 2.4 mils (60 microns).

B. Coating Performance Metrics:

1. **Adhesion:** Minimum 90% retention compliance when validated via ASTM D3359 (Method B) tape-test metrics.
2. **Impact Resistance:** Capable of withstanding forward rapid impact testing exceeding 60 inch-lb without cracking or peeling per ASTM D2794 metrics.
3. **Salt Spray Corrosion Resistance:** Minimum 1,000 hours of continuous exposure under ASTM B117 salt fog testing without exhibiting paint blistering, undercutting, or red rust propagation.

C. Color Selection: Finish color shall be **[RAL 9005 Jet Black] [Custom RAL Color Matching Code: _____]** as chosen by the Architect.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that all final grading within the specified fence path has been thoroughly completed and is free from irregular grade variations that would compromise uniform ground clearance.

B. Field-verify all primary boundaries, post locations, and structural run dimensions prior to commencing layout or excavation work.

3.02 PREPARATION & FOUNDATION ASSEMBLY

A. Layout lines must be staked accurately according to structural project plans.

B. Prepare setting holes for embedment of fence posts or core-drill existing concrete foundations where base plates are not specified. Holes must be clean and free of loose debris.

3.03 POST INSTALLATION

******* SPECIFIER NOTE: Retain only the post mounting method specified for this project and delete the alternative method. *******

A. [For In-Ground Concrete Footing Installations]:

1. Drill or excavate holes for posts to the diameters and uniform spacing indicated on the project drawings in firm, undisturbed soil.
2. Excavate concrete footings to a minimum depth of 36 inches, or deeper if required by local building codes to extend safely below the regional frost line.
3. Set posts plumb, level, and dynamically aligned with the specified fence line run.
4. Temporarily brace and anchor fence posts securely using wood supports or mechanical framing devices to maintain structural positioning until the concrete footing has set completely.

B. [For Base Plate / Surface Mounted Installations]:

1. Clean and verify that the target concrete slab or structure substrate is structurally sound and ready for attachment.
2. Securely bolt the integrated post base plates and mounting flanges to the concrete or masonry using heavy-duty expansion bolts or adhesive anchoring systems as detailed on the drawings.
3. Ensure all anchoring hardware is fully torqued to prevent structural framework movement or shifting under design wind loads.

3.04 FENCE PANEL AND HARDWARE ASSEMBLY

A. Ground Clearance: Install all wire mesh fence panels to maintain a clear minimum distance of 1-1/4 inches and a maximum distance of 2 inches from the final finished ground surface to prevent bottom binding or excessive animal gaps.

B. Panel Orientation: Position panels uniformly across the post runs with integrated structural V-bends facing [inward toward the property] [outward toward the perimeter]. Ensure the wire mesh panel spikes are oriented [upward for high-security anti-climb protection] [downward for public safety] as dictated by project demands.

C. Hardware Fastening: Rigidly lock the wire mesh panels to the fence posts using the factory-supplied clamps and brackets specified in Part 2.

1. Secure all bracket configurations using heavy-gauge 5/16-inch diameter stainless steel mushroom-head security bolts paired with matching 5/16-inch high-security tamper-proof nuts and industrial washers.
2. Fastener lengths must strictly adhere to the following structural parameters to guarantee complete thread engagement through the post profile:
    a. For Standard Spider Brackets on Square Posts: Fastener length must equal the chosen post profile size plus 1/2 inch (e.g., a 2-inch post requires a 2-1/2 inch bolt).
    b. For Wrap-Around Square Brackets, H-Profile Spider Brackets, and Round Omega Brackets: Fastener length must be fixed precisely at 1-1/2 inches.

3. Fully tighten and lock all tamper-proof nuts from inside the secure side of the property line to render the hardware assembly completely tamper-proof and prevent unauthorized removal. Do not install bent, bowed, or visually marred panels.

3.05 CORROSION FIELD MAINTENANCE

A. Upon executing any necessary field cutting, trimming, or structural bolt-hole drilling of galvanized and powder-coated panels, posts, or hardware, the contractor shall immediately adhere to the following sealing steps to protect exposed raw steel from oxidation:

1. Clean: Meticulously remove all loose metal shavings, drilling dust, and iron debris from the altered zone.
2. Prime: Apply a comprehensive coat of premium, industrial zinc-rich primer to thoroughly encapsulate the raw exposed edge or inner bolt hole and allow to dry completely.
3. Finish: Apply two uniform topcoats of factory-supplied matching touch-up paint to completely seal and finish the repair zone.

> ⚠ **CRITICAL WARRANTY NOTICE TO THE CONTRACTOR:**
>
> Failure to immediately clean, prime, and paint field-exposed steel surfaces using the exact three-step sequence outlined above will completely negate and void the manufacturer's system finish warranty.

3.06 CLEANING

A. Clean the job site meticulously of all excess installation materials, post-hole soil excavations, metal remnants, and loose packaging.

B. Scatter post-hole excavation dirt uniformly away from the concrete bases, or remove it from the site as directed by the site consultant.

C. Wipe away any wet concrete splash or grout splatter from finished powder-coated post surfaces prior to curing to ensure the factory-applied surface finish remains unmarred.