1 PART 1 – GENERAL

1.1 SUMMARY/DESCRIPTION

A. Scope of Section: Provide aluminum flagpole(s) as shown on attached drawing or as specified herein, with components as needed for a complete installation.

1.2 REFERENCES

A. American National Standard Institute (ANSI) / National Associate of Architectural Metal Manufacturers (NAAMM) "Guide Specifications for Design of Metal Flagpoles", ANSI/NAAMM FP 1001-07.

B. American Society for Testing Materials (ASTM) B221: Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

C. Aluminum Association (AA): Aluminum Finishes Designations

D. National Association of Architectural Metal Manufacturers (NAAMM) and National Ornamental & Miscellaneous Metals Association (NOMMA) "Metal Finishes Manual for Architectural and Metal Products", NAAMM / NOMMA AMP 500-06.

E. American Architectural Manufacturers Association (AAMA), "Voluntary Specification, Performance Requirements, and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels", AAMA 2603

F. Qualicoat (a European / Australian "Specifying, Approving and Quality Labeling body for coating of aluminum building components") publication: "Specifications for a Quality Label for Liquid and Powder Organic Coatings on Aluminum for Architectural Applications".

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide flagpoles capable of withstanding the effects of wind loads according to ANSI/ NAAMM FP 1001-07, "Guide Specifications for Design of Metal Flagpoles", which specifies the winds loads on the pole with flag flying, to a specified wind speed 140 km/hr minimum[1], with unflagged windspeeds of 160km/hr.

B. Flagpole Design: Design shall be based on standard size polyester flag suitable for use with pole. (Standard flag size for 18 m flagpole is 3m x 6m).

1.4 SUBMITTALS

A. Product Data: For each type of flagpole required, submit manufacturer's technical data and standard instructions.

[1] As defined in ANSI/NAAMM FP 1001-07, winds speeds are based on a 50-year mean recurrence interval, for a 3 second gust speed at 10m above ground level.

B. Shop Drawings: Show general layout, jointing, anchorage, support systems, foundations, and accessories.

C. Structural Calculations and Structural Analysis Data: Required to be provided if requested by consultant / owner. Detailed calculations performed in accordance with ANSI/NAAMM FP 1007-01 are necessary for any alternative proposed flagpole with geometry differing from recommended specifications listed in Section 2.2 B (below).

D. Samples: Finish samples for each finished metal used on flagpoles, as may be requested.

1.5 QUALITY ASSURANCE

A. Source: Obtain each flagpole as a complete unit from flagpole manufacturer / authorized dealer, including fittings, accessories, bases, and anchorage devices.

B. Installer Qualifications:

   a. Five years' experience installing flagpoles of similar height and complexity in locale of the project.

   b. Authorized and trained by flagpole manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. General: Spiral wrap flagpoles, with a heavy Kraft paper or other lightweight wrapping or other protective means. Store bare flagpoles in a dry location, protected from the weather and moisture, as recommended by the manufacturer.

B. Shipping: Ship / deliver to project site in one piece or as specified.

2 PART 2 – PRODUCTS

2.1 MANUFACTURER

A. Approved Flagpole Manufacturers / Models, subject to compliance with requirements, include:

   a. Prestige Flagpole™ by Trident Support Flagpoles, LLC.; PO Box 488132, DIP-2, Dubai, UAE (+9714 883-0501)

   b. Others as noted, subject to qualification and approval.

2.2 FLAGPOLE TYPE AND CONSTRUCTION

A. Aluminum Flagpole Construction

Fabricate flagpole shaft from extruded aluminum tubing with no visible seam, complying with ASTM B221. Flagpole shafts shall be fabricated from 6063 alloy in a T4 temper, tapered, and welded with 4043 filler alloy (for base plate, door assembly, and cap), and heat treated to a T6 temper after fabrication and welding. Preferred origin for flagpole shaft fabrication is United States or European Union.

   a. Flagpole shaft shall be cone-tapered, per manufacturer's standard rate of taper.

b. Shoe-type Base Plate: Base Plate shall be appropriately sized for the flagpole, and shall be welded to the shaft at the factory prior to heat treating to T6 Temper.

c. Shaft shall be fitted with a cast aluminum top plug, drilled and threaded for connection of truck assembly; and shall include reinforced handhold opening with flush fitting aluminum door with locking style closure; and internal plate for mounting a cam-cleat.

d. If more than one piece / section is necessary, provide snug fitting precision joints with self-aligning, internal splicing sleeve arrangements for weather tight, hairline field joints.

B. Assembly Features / Model: Internal Rope Halyard, Revolving Truck Assembly with Winch - Shoe Base Mounting, and flush access door.

- Designed in accordance with ANSI/NAAMM FP-1001-07 for performance requirements as noted in Section 1.3. Recommended / Approved flagpole shaft geometry (with approximate / nominal dimensions) as follows:
  - Nominal Height: 18m, multi-section (3 sections).
  - Butt Diameter: 305mm (12”)
  - Top Diameter: 102mm (4”)
  - Wall Thickness: 6.5mm, 5mm, and 5mm (Sections 1,2, and 3 respectively). (.250”, .188”, and .188”)

2.3 MOUNTING

Shoe Base: Cast aluminum shoe base will be anchored to a concrete foundation block using four hot-dipped galvanized steel anchor bolts, M24 x 550mm Grade 8.8 or Equivalent, to be cast into the foundation as per the attached design. Kits will contain a total of 20 hex nuts and 8 washers as follows: Five (5) hex nuts and two (2) washers per anchor bolt (2 nuts for the template embedded in the foundation, a leveling nut and washer under the base plate, and a nut and washer on top of the base plate, and a locking nut), with all nuts / bolts being galvanized steel, with mild steel top and bottom templates matching the base plate bolt pattern.

2.4 FITTINGS

Provide either Option A (Finial Ball and Revolving Cone-Style, Internal Halyard Top Hat Truck Assembly), or Option B (Combination Truck/Ball Assembly), or as specified by Client.

A. Finial Ball (Ornament) and Revolving Cone-Style Top Hat Truck Assembly for Internal Halyard:

a. Ball (Ornament): Spun Aluminum, Gold Tone Anodized spherical ball, size as indicated or, if not indicated, to match pole butt diameter. Includes stem / rod for attaching ball to truck assembly. Ball diameter: 254 mm (10”).

b. Cone Style Top Hat Truck Assembly: Internal Halyard, revolving truck assembly, made of a cast aluminum housing; with dual sealed stainless steel spindle

bearings; and aluminum internal pulley assembly, and bronze halyard exit bushing.

- OR -

B. Ball / Truck Combination: Internal Revolving Truck Assembly, that combines the function of the truck assembly with the ornamental finial ball in one assembly. Constructed of heavy duty cast aluminum; with upper and lower sealed baring assemblies for the rotating spindle, and a bronze exit bushing for the halyard. Ball Size: 254 mm (10").

- AND -

C. Internal Halyard Winch System: Provide one (1) complete internal halyard stainless steel wire cable assembly with plastic coated counterweight and beaded sling assembly. A manually operated mechanical winch having an automatic brake system and operated by a removable hand crank, will be installed inside the flagpole and concealed behind a flush access door having a cylinder lock.

D. Flash Collar: Provide Spun Aluminum Collar to match flagpole. Aluminum collar is to be the same finish as the flagpole shaft, to cover the base plate and bolts to provide a more decorative appearance.

2.5 MISCELLANEOUS MATERIALS

Concrete for foundation: Unless otherwise specified, comply with requirements of "Cast in Place Concrete", appropriately reinforced, and with bituminous protection as per attached foundation design.

A. Blinding Concrete: Grade C25 Cube Strength @28 days, 25 N/mm^2. Maximum Aggregate size, 20mm.

B. Sub-Structures: Grade C40 Cube Strength @ 28 days, 40 N/mm^2. Cement, 400 400 Kg/m^3 Minimum ordinary Portland cement; maximum aggregate size, 20mm. Maximum free water / cement ratio (0.4)

2.6 FINISHES

Provide either Option A (Natural Satin Finish), or Option B (Powder Coated Finish), based on preferences and requirements as specified by client. This section must be specified by Consultant prior to tender / solicitation.

A. Natural Satin Finish: Also called "Brushed Satin" finish. Provide a mechanical finish, directional textured as defined and specified in NAAMM / NOMMA AMP 500-06 ("Metal Finishes Manual"). Aluminum Association finish designation AA-M33 is applicable. This provides for an 80 to 100 grit finish, accomplished by belt polishing.

- OR-

B. Powder Coated Finish: Provide powder coated finish applied and tested in accordance with a minimum of either AAMA 2603 or Qualicoat specifications Class 1, with a dry film thickness of 60-80 microns. RAL Color to be specified by client. RAL _____

3 PART 3 – EXECUTION

3.1 PREPARATION

Foundation: Provide cast-in-place (or pre-cast if approved) foundation per Manufacturer's recommended design. Excavate to neat clean lines in undisturbed soil. Remove loose soil and foreign matter from excavation and moisten earth before placing concrete. Provide forms where required due to unstable soil conditions and for perimeter of flagpole base at grade. Secure anchor bolts in position with templates and brace to prevent displacement during concreting. Place concrete immediately after mixing. Moist-cure exposed concrete for not less than 7 days or use a non-staining curing compound. Trowel exposed concrete surfaces to a smooth, dense finish, free of trowel marks and uniform in texture and appearance. Provide positive slope for water runoff to base perimeter.

3.2 FLAGPOLE INSTALLATION

A. General: Install flagpoles where shown and according to shop drawings and manufacturer's written instructions.

B. Shoe Base Installation: Place flagpole on top of the installed anchor bolts / leveling nut and washer, and fix using flat washer, and hex nut. Tighten nut and verify that all threads are fully engaged. Install locking nut if required. Cover with decorative flashing collar.

C. Test halyard system / flag hoisting mechanism in accordance with manufacturer's written instructions. Ensue that counterweight, retaining ring, and other components are installed correctly and that the truck assembly rotates properly.

4 Flagpole Drawings

See attached.

Contact Trident Support Flagpoles – Technical Sales Team for current shop drawings / model specification package at +9714 883-0501, or via email at info@trident-support.com

5 Foundation Design / Drawings

See attached.

Contact Trident Support Flagpoles – Technical Sales Team for current foundation design drawings / model specification package. +9714 883-0501, or via email at info@trident-support.com

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