
PART 1 - GENERAL1.1 RELATED
REQUIREMENTS

- .1 Section 05 50 00 Metal fabrication.

1.2 REFERENCES

- .1 The Aluminum Association (AA).
 - .1 AA DAF-45-R03, Designation System for Aluminum Finishes - 9th Edition.
- .2 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM A 53/A 53M-02, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A 480/A 480M-03b, Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.
 - .3 ASTM B 241/B 241M-02, Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.
- .3 Canadian Standards Association (CSA International).
 - .1 CAN/CSA-G164-M92 (R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .4 The Master Painters Institute (MPI).
 - .1 Architectural Painting Specification Manual - March 1998 (R2002).

1.3 DESIGN
REQUIREMENTS

- .1 Flagpole, bases and anchorage devices to resist minimum wind velocity of 145 km/h unflagged, 100 km/h flagged.
- .2 Description:
 - .1 Material: Aluminum.
 - .2 Exposed Height: 9.1M.
 - .3 Butt Diameter: 114mm.
 - .4 Top Diameter: 127mm.
 - .5 Flag Size: 66mm.

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- 1.4 ACTION AND INFORMATIONAL SUBMITTALS
- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit manufacturer's technical data and installation instructions for each type of flagpole.
 - .3 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Indicate dimensions, finishes, base jointing, anchoring and support systems, cleats, halyard boxes, trucks, finials and base collar for flagpoles.
 - .2 Submit 6 copies of shop drawings of flagpoles and bases, showing general layout, jointing and complete anchoring and supporting systems.
 - .4 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .5 Submit sample of flagpole.
- 1.5 QUALITY ASSURANCE
- .1 Provide each flagpole as complete unit produced by single manufacturer, including fittings, accessories, bases and anchorage devices.
- 1.6 DELIVERY AND STORAGE
- .1 Deliver, store, handle and protect materials in accordance with manufacturers written specification.
 - .2 Spiral wrap each flagpole with heavy kraft paper, wood strip and steel band, or polyethylene wrap and pack in tubing for shipment.
 - .3 Deliver flagpole in 3 pieces.
 - .1 When more than one piece is required, provide precision joints with self aligning internal splicing sleeve arrangement.
- 1.7 WASTE MANAGEMENT AND DISPOSAL
- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

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- .3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
 - .4 Separate for recycling and place in designated containers waste in accordance with Waste Management Plan.
 - .5 Fold up metal banding, flatten and place in designated area for recycling.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Aluminum:
 - .1 Aluminum Association alloy AA 6063-T5 seamless extruded aluminum tubing.
 - .2 Fabricated from seamless extruded tubing in accordance with ASTM B 241, alloy 6063 T6, having minimum tensile strength not less than 20 MPa and a yield point of 17 MPa. Heat treated and age hardened after fabrication.
- .2 Isolation coating: alkali-resistant bituminous paint or epoxy resin solution.

2.2 FABRICATION

- .1 Supply 9100 mm long flagpole as complete unit including base mounting brackets anchorage and fittings.
- .2 Cone tapered flagpole:
 - .1 Seamless, uniform, straight line tapered section above cylindrical butt section.
 - .2 Taper: 48 mm of run.
 - .3 Provide internal splicing, self-aligning sleeve of same material as flagpole for snug fitting, watertight field joints.
- .3 Swaged sectional flagpole:
 - .1 Telescoped or stepped.
 - .2 Join pipe sections of consecutively decreasing diameters.
 - .3 Form tight shop and field joints between inserted sections with shrunk or closely telescoped fit attained by reducing diameter of outer section where required by hydraulic bell-die swaging.

- .4 Provide internal rest collar welded to inside of pipe for field joints.
 - .5 Weld exposed edge of section joint to form neat continuous bevelled weld. Grind smooth.
 - .6 Make joints air and water tight.
- .4 Venetian entasis tapered flagpole: venetian entasis tapered, convex curved section, above cylindrical butt section.
 - .5 Do welding to appropriate CSA Standard, by welders certified by Canadian Welding Bureau. Finish exposed welds flush and smooth.

2.3 ACCESSORIES

- .1 Finial: 152 mm diameter ball of 1.6 mm minimum thick, aluminum anodized to match flagpole finish.
- .2 Truck assembly: cast aluminum ballbearing, nonfouling, revolving double truck assembly, finish to match flagpole.
- .3 Cleats: 230 mm size, two per halyard, cast aluminum finish to match flagpole.
- .4 Halyard: internal, two continuous halyards per flagpole; 10 mm (No.12 polypropylene, braided white, with steel or bronze core. Retaining loop and weights for internal halyard, nylon covered.
- .5 Swivel snaps: two per halyard; aluminum with neoprene or vinyl covers.
- .6 Cleat box: one per cleat; cast aluminum finish to match flagpole. Furnish hasp for padlock, hinged cover, and tamperproof screws. Include lockable cleat box.

2.4 FINISHES

- .1 Aluminum.
 - .1 Impregnated colour anodic finish: colour to match Departmental Representative's sample.
 - .2 Appearance and properties of anodized finishes designated by the Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative.

2.5 FIELD
FABRICATION

- .1 Fabricate roof-set support and braces for flagpole as indicated. Include aluminum braces; with turnbuckles, and roof anchors.
- .2 Fabricate mountings of same metal as flagpoles where exposed.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Shop apply isolation coating to metal surfaces of flagpole and base that will be encased in concrete below roof level.
- .2 Install flagpoles, base assemblies roof assemblies and fittings to shop drawings and manufacturer's instructions.