

## ITEM 11615.8085 M - STEEL FLAGPOLE WITH YARDARM (NYCDPR)

### DESCRIPTION

This work shall consist of furnishing and installing steel flagpole with yardarm, complete with fittings, including construction of foundation, granite base, halyards, and three (3) sets of three (3) flags, in accordance with the details indicated in the plans at the locations indicated in the plans or as directed by the Engineer. One set of flags shall be installed and two sets shall be furnished as extra materials to the Engineer, as specified under the heading extra materials.

### MATERIALS

#### Manufacturer Requirements:

- A. It is the intent of this work to construct a complete flagpole fabricated by a single manufacturer. The completed flagpole shall be delivered to an approved factory for hot dip galvanizing and shop applied finish coatings in accordance with the Contract Documents and the Shop Drawings as approved by the Engineer.
- B. The Contractor shall coordinate the work and delivery of the flagpole between manufacturer and galvanizer and supply all parties involved with the relevant information required to fabricate, finish, and install the flagpole.

Flagpole: The flagpole shall be similar in design and manufacture to that fabricated by:

Pole-Tech, Inc.  
East Setauket  
N.Y. (516) 689-5525

or equal as approved by the Engineer.

Galvanizing and Finish Coats: The galvanizing and finish coats for flagpole shall be similar to Nigalv, Primergalv, and Colorgalv as manufactured by:

Duncan Galvanizing Corp.  
Everett, Ma.  
(800) 389-8440

or equal as approved by the Engineer.

Hardware: Hardware shall be stainless steel 18-8.

Foundation: Concrete for footing and foundation shall be Footing Concrete, Class A, in accordance with Section 555-Structural Concrete of the Standard Specifications.

Grounding: Grounding system shall consist of three (3) copper bonded ground rods, copper grounding cable (size #2/0), PVC through sleeve and grounding connectors. Grounding system shall comply with all national

**ITEM 11615.8085 M - STEEL FLAGPOLE WITH YARDARM (NYCDPR)**

and local laws, ordinances and safety standards that apply to lightning protection. All components shall be similar to that manufactured by:

Heary Brothers Lightning Protection Co., Inc.  
Springville, N.Y.  
(800)-421-6141

or equal as approved by the Engineer.

**Steel Bar Reinforcement:** Reinforcement shall meet the requirements of the applicable paragraphs of Section 556 of the Standard Specifications. Reinforcement shall be of the sizes and dimensions shown on the plans.

**Flagpole:** The flagpole shall be cone tapered steel having a uniform straight line taper of 10 mm for every 857m of height. The flagpole shall have a butt diameter of 220 mm and a minimum butt wall thickness of 8mm. Steel for pole shall conform to ASTM A-53 type S, Grade B.

**Yardarm:** Yardarm shall be fabricated from the same steel the flagpole is made of. The yardarm shall have tapered ends and its length shall be approximately 27% of the pole height and shall be installed at a height approximately one-third (1/3 ) down from the top. Yardarm shall be furnished with two stainless steel swivel blocks, with single sheave pulleys and end caps. Yardarm shall be installed with steel mounting bracket.

**Granite:** Granite shall be sound, durable, properly quarried, free from reeds, rifts, laminations, and minerals which, by weathering, would cause discoloration, reasonably uniform in quality and texture throughout, free from an excess of mica and feldspar, seams, scales, or evidence of disintegration. Granite shall be:

“Sierra White”  
Manufactured by  
Cold Spring Granite  
(800) 551-7502

“Mt. Airy White”  
Manufactured by  
North Carolina Granite  
(800) 227-6242

or equal as approved by the Engineer.

All exposed surfaces of granite shall have a thermal finish. All exposed surfaces must be out of wind, free from waves, projections, or depressions on the faces of the granite. Arrises must be cut sharp and true to square or pattern.

The granite base shall consist of a single piece of granite, perforated to leave a hole for flagpole, and provided with Lewis holes on concealed surfaces, for handling.

**Sleeve Tube Assembly:** The corrugated steel sleeve tube and plate with three T-ribs cut to wedge shape and welded at bottom shall be as shown on the detailed drawing. The entire sleeve tube assembly shall be hot-dip galvanized after fabrication.

## ITEM 11615.8085 M - STEEL FLAGPOLE WITH YARDARM (NYCDPR)

Collar: The Ornamental collar at the base of the flagpole shall be constructed of cast aluminum alloy 7 °C. It shall be cast in one piece and shall have a minimum thickness of 6 mm. The profile shall be as shown on the detail.

Mortar: All mortar for pointing and setting granite shall be composed of one part non-staining Portland Cement and two (2) parts of fine screened sand.

Truck: The truck shall be non-fouling, double revolving type with stainless steel ball bearing races, and cast aluminum body with two (2) 60 mm diameter aluminum sheaves as shown on the detailed drawings or as directed by the Engineer.

Ball: The finial shall be a 250 mm diameter copper ball with 23 Kt. gold leaf finish, attached to a 19 mm diameter copper rod and mounted on the truck.

Aluminum Cleats: Three (3) 200 mm cast aluminum cleats finished to match pole shaft, and secured to the pole with 50 mm stainless steel flathead machine screws.

Cleat Cover Box: Replace existing cleat cover box or boxes with a new single cleat cover box. The new single box shall be radial in shape and constructed to enclose all three cleats as shown on the detailed drawings. The new box shall be constructed of either steel or aluminum. The steel version of the new single box shall be fabricated of ten (10) gauge plate steel with joints welded with a continuous, full penetration weld and ground down flush with the adjacent surface and slightly rounded at corners, with a stainless steel piano hinge and hasp spot-welded. The piano hinge shall have a fast pin of stainless steel. The steel box shall be hot dip galvanized after fabrication. The aluminum version shall be constructed either of sand cast aluminum or welded aluminum plate. The sand cast box is fabricated of aluminum alloy 43F, with a thickness of 6 mm, given a satin finish and heavily waxed. The welded aluminum box is fabricated of 6 mm thick 6063-T6 aluminum alloy with joints welded and ground down flush with the adjacent surface and slightly rounded at the corners. Hinges and hasp shall be of stainless steel 18-8, secured to the box with SS rivets or tamper-proof 13 mm-20 NC machine screws. Hinges shall have fast pins of stainless steel. The box shall be secured to flagpole with stainless steel machine screws at a height of three meters (3 m) above grade to center line of cleats. The new box shall be similar to that manufactured by:

Pole-Tech, Inc.,  
East Setauket, N.Y.  
(516) 689-5525

or equal as approved by the Regional Landscape Architect.

The Contractor shall also furnish a 38 mm brass padlock with five (5) pin tumblers similar and equal to American Lock No. 5531, as manufactured by:

American Lock Co.  
Crete, Illinois

or equal as approved by the Engineer.

## ITEM 11615.8085 M - STEEL FLAGPOLE WITH YARDARM (NYCDPR)

Two (2) keys shall be supplied to the Engineer. Contractor shall submit shop drawing showing all dimensions and hardware to the Engineer for approval.

Halyards: The Contractor shall furnish and install three (3) halyards. The halyards shall be 4 mm overall diameter clear vinyl coated 7 x 19 strand core stainless steel aircraft cables secured with four (4) hot dip galvanized wire rope clips. Two brass boat snaps per halyard, equal to catalogue No. 249 of Mahony-Clarke, Inc., No. 2 size, 19 mm inside diameter of eye and 90 mm overall length, shall be attached to the halyards with two (2) additional wire rope clips in such a way to allow passage of the halyard around the sheaves.

Flags: The Contractor shall furnish three (3) sets of three (3) flags. Flags shall be 200 denier nylon as manufactured by:

Art Flag Co.  
(212) 334-1890

or equal as approved by the Engineer.

The flag sizes shall be as follows:

United States of American Flag	1525 mm x 2440 mm
New York City Parks Flag	1220 mm x 1830 mm
New York City Flag	1220 mm x 1830 mm

One set of flags shall be installed and two sets shall be furnished as extra materials to the Engineer, as specified under the heading extra materials.

Finishes: Galvanizing and Finish Coats. The entire steel flagpole and yardarm, except aluminum and non-ferrous components shall receive three (3) coats. After surfaces have been cleaned in a sodium hydroxide solution, they shall be finished as follows:

- A. First Coat. Apply hot-dip galvanized coating with a minimum 0.05 percent nickel content. Thickness of coating to be 150 to 299  $\mu\text{m}$ . Coating shall conform to ASTM A123 and A153. The galvanized coating shall be Nigalv, as manufactured by:

Duncan Galvanizing Corp.  
Everett, Ma.  
(800) 389-8440

or equal as approved by Engineer.

- B. Second Coat. Apply a shop coat of polyamide epoxy primer within twelve (12) hours after galvanizing. Thickness of prime coat shall be a minimum of 50  $\mu\text{m}$ . The primer shall be Primergalv as manufactured by:

Duncan Galvanizing Corp.  
Everett, Ma.

**ITEM 11615.8085 M - STEEL FLAGPOLE WITH YARDARM (NYCDPR)**

(800) 389-8440

or equal as approved by Engineer.

- C. Third Coat. Apply a shop coat of polyurethane color topcoat immediately after application of the prime coat. The topcoat shall be Colorgalv, as manufactured by

Duncan Galvanizing Corp.  
Everett, Ma. (800) 389-8440

or equal as approved by Engineer.

Painting: All aluminum and non-ferrous components of flagpole shall receive two (2) shop coats. After surfaces have been solvent cleaned and prepared, they shall be painted as follows:

- D. First Coat: First coat shall be Con Lux Bond Plex 46 Green Primer as manufactured by:

Sherwin Williams Company  
(718) 426-8813

or equal as approved by the Engineer.

Primer is a water-borne urethane and requires twenty-four (24) hours drying time before recoating.

- E. Second Coat

Sherwin Williams Silicone Alkyd Low VOC B56Z  
Manufactured by  
Sherwin Williams Company  
(718) 426-8813

or equal as approved by the Engineer.

Topcoat is a silicon alkyd, high gloss coating having a dry film thickness of 50-100 µm. Paint shall perform in accordance with ASTM G-53.

Color: Flagpole and yardarm shall be finished in white. The ornamental collar shall be finished in black enamel. All flagpole parts shall be painted prior to installation.

**CONSTRUCTION DETAILS**

Excavation Excavation shall be cut accurately to the lines and levels shown on the plans, and where soil conditions allow, excavation shall be finished true and square so that concrete foundations may be poured

## **ITEM 11615.8085 M - STEEL FLAGPOLE WITH YARDARM (NYCDPR)**

without use of forms. Bottom of excavation shall be filled with concrete, and under no circumstances shall excavated material be used for such filling below footing.

If forms are used for construction of concrete foundations, the excavation shall be at least one foot larger than the concrete work, to permit work on the forms. After the removal of the forms, the space around the concrete footing shall be backfilled with acceptable material, thoroughly rammed and tamped in place.

No concrete shall be poured until after the excavation has been inspected and approved by the Engineer.

Concrete The concrete foundation shall be placed in two (2) pours. The concrete for the footing shall be poured and allowed to set before setting and grouting of socket tube. Concrete for upper portion of the foundation shall be placed after socket tube, inserts, reinforcing and pvc sleeve for ground cable have been properly set and secured to maintain their proper position during pouring. Concrete, during and immediately after placing, shall be thoroughly tamped to remove all voids in the mix.

Where it is necessary to extend the footings to obtain satisfactory bearing, the Contractor will be paid for the additional excavation and concrete under their respective Items.

Sleeve Assembly Sleeve Assembly tube shall be carefully and accurately plumbed.

Beds and Joints All beds and joints shall be cut full and square for at least 50 mm at beds and may fall off not over 25 mm in 300 mm, and shall be reasonably free from large depressions. All joints shall be of uniform width of 4 mm at arris line. All jointing shall be as shown on the plans.

Setting All granite shall be set in a full bed of mortar. Granite shall be brushed, cleaned, and drenched with water immediately before setting.

Cleaning and Protection After setting is completed, the granite work shall be thoroughly cleaned down with a solution of soap powder and water and a second washing with clear water so as to remove all detergents used in cleaning granites, and the use of any acid solution in cleaning is strictly prohibited. No granite shall be set during freezing weather except by written permission of the Engineer, and after setting, all corners, edges and projections shall be adequately protected from staining at all times until the completion of the work and final acceptance of the contract.

Setting Pole The pole shall not be set until after the concrete has thoroughly hardened, and in no case sooner than eight (8) days after pouring of the concrete. The copper grounding cable shall be mounted to the grounding pad and sleeved through the concrete foundation before the pole is set.

The pole shall be set into the sleeve assembly so as to wedge securely at bottom, then carefully plumbed and wedged at top of socket hole with wedges as shown, to hold pole securely in a vertical, plumb position. After wedging the pole, the space between pole and socket hole shall be filled with dry sand to within 50 mm of the top of hole, well compacted by tapping pole and tamping. Sand shall be heated to eliminate all moisture. The annular space at the top of the granite base shall then be packed with a non shrink grout.

The space between pole and collar shall be filled with a polyurethane elastomeric sealant similar to Sikaflex-1A as manufactured by:

## **ITEM 11615.8085 M - STEEL FLAGPOLE WITH YARDARM (NYCDPR)**

Sika Corporation  
Lyndhurst, NJ  
(800) 933-7452

or equal as approved by the Engineer.

Protection of Flagpole Flagpole shall be well wrapped and protected while in transit between shops and delivery to site. Damages or defects occurring shall be repaired at the Contractor's expenses. Damages to finish shall be restored with an organic zinc primer and an approved top-coating in accordance with the manufacturer's recommendations.

### **SUBMITTALS**

Granite Samples The Contractor shall submit to the Engineer for approval two (2) 200 mm x300 mm samples of granite they propose to use. Samples shall be dressed as specified and show the extreme variation in quality, color, and texture that will occur in the granite to be used.

Color and Finish Sample Contractor shall submit two (2) samples of shop-applied finish coats and color.

Shop Drawings Shop drawings are required. Shop Drawings shall show general layout including jointing of flagpole and complete anchoring and foundation with dimensional information.

Substitutions A written request for substitution of manufactured products or coating systems must be submitted to the Engineer. The Contractor shall submit this request, along with manufacturer's data sheets for approval, a minimum of two weeks prior to the intended date of construction. All substitutes must be approved in writing prior to use.

**GUARANTEE** The Contractor shall guarantee all workmanship and materials furnished and installed by them or their Subcontractors as described in this Item from defects that may develop within a period of one year from the date of acceptance of the work.

### **EXTRA MATERIALS**

The Contractor shall furnish (supply and deliver only, not install) Extra Materials and deliver to the Engineer as follows:

Two (2) sets of the three (3) specified flags (1525 x 2440 mm American Flag, 1220 x 1830 mm Parks Flag, and 1220 x 1830 mm City Flag) listed under the "Materials" heading of this Item.

### **METHOD OF MEASUREMENT**

**ITEM 11615.8085 M - STEEL FLAGPOLE WITH YARDARM (NYCDPR)**

The quantity for payment will be for the number of flagpoles and yardarms erected, complete with fittings, including construction of foundation, granite base, halyards, and three (3) sets of three (3) flags, in accordance with the details indicated in the plans at the locations indicated in the plans or as directed by the Engineer.

**BASIS OF PAYMENT**

The unit price bid for furnishing and erecting steel flagpole with yardarm shall include the cost of all labor, materials, and equipment necessary to furnish and erect flagpole with yardarm including granite, concrete, flags, halyards, finishing, reinforcing steel, excavation, backfill, grounding system and all other incidentals necessary to complete the work in accordance with the details indicated in the plans at the locations indicated in the plans or as directed by the Engineer.