

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 45 00 – Quality Control
- .2 Section 01 65 00 – Product Delivery Requirements
- .3 Section 05 74 00 – Custom Bronze Components
- .4 Section 10 12 00 – Custom Metal-Framed Glass Display Cases
- .5 Section 12 14 13 – Cut and Carved Stone Components

**1.2 ADMINISTRATIVE REQUIREMENTS**

- .1 Coordination.
  - .1 Coordinate all work to produce bronze, stone and glass display case components to assemble altar structures.
  - .2 Coordinate delivery to Assembly Shop and Final Installation Site with Departmental Representative.
  - .3 Coordinate assembly and inspection at Assembly Shop and Final Installation Site with Departmental Representative for review and approval process.
- .2 Pre-Installation Meetings.
  - .1 Organize and preside over pre-installation meeting with component fabricators and Departmental Representative.
- .3 Schedule.
  - .1 Foundry production of all bronze components.
  - .2 Fabrication of metal framed glass display cases.
  - .3 Cut stone and carving work.
  - .4 Schedule Assembly Shop Delivery and assembly work with Departmental Representative.
  - .5 Schedule delivery and assembly to Final Installation Site with Departmental Representative.

**1.3 SUBMITTALS**

- .1 Shop Drawings.
  - .1 Submit assembly shop drawings in accordance with Section 01 00 10 – General Instructions.
- .2 Record Documentation.
  - .1 Submit record documentation in accordance with Section 01 00 10 – General Instructions.

**1.4 QUALITY CONTROL**

- .1 Ensure collaboration with all sections of work and Departmental Representative to refine and review final details for all components.

- .2 Presence of Departmental Representative is required during Final Installation Site installation.
- .3 Reference Sections:
  - .1 01 45 00 – Quality Control.

## **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Complete in accordance with Section 01 65 00 – Product Delivery Requirements.

## **Part 2 Products**

### **2.1 PRODUCTS**

- .1 Cast bronze legs.
- .2 Cast bronze skirts.
- .3 Cast bronze bracing supports.
- .4 Cut and carved stone altar tops.
- .5 Cut stone feet.
- .6 Fabricated metal framed display cases.

### **2.2 MATERIALS**

- .1 Reinforcing bars: 13mm x 50mm x length to suit application silicon bronze bar stock.
- .2 TIG welding rods: bronze.

### **2.3 ACCESSORIES**

- .1 Supply and co-ordinate installation of all fasteners for pre-finished stone feet: Fasteners to be 13 mm diameter x 127 mm long stainless steel threaded anchor bolts, with locking nuts and washers.
- .2 Patination chemicals: ferric nitrate or Birchwood Casey brown.

## **Part 3 Execution**

### **3.1 ASSEMBLY SHOP CONSTRUCTION**

- .1 Locate Assembly Shop in the National Capital Region.
- .2 Deliver all components to Assembly Shop in accordance with Section 01 65 00 – Product Delivery Components.
- .3 Assemble components to dimensions shown on Contract Drawings.
  - .1 Assemble legs, skirts and corner braces.
    - .1 Set up legs and skirt sections on flat welding table or platen, ensuring that there is sufficient room for the display case between the side skirt sections.
    - .2 Some grinding or filing may be required to match the ends of the skirt sections to the tops of the legs to ensure a good fit.
    - .3 Top must be flat and all sides square to support stone slab properly.

- .4 Tack weld components in place, check that they are square, and that the legs are plumb. Make corrections if necessary.
- .5 Tack weld decorative braces between legs and skirt sections.
- .6 TIG weld 16 cast bronze components per altar on inner and outer surfaces.
- .7 Weld horizontal reinforcing bars to inner edge of long side skirt sections.
- .8 Insert and weld in place 10 mm thick bronze plate in bases of bronze leg components.
- .9 Reinforce bronze skirt components: TIG weld silicon bronze bars to back side of full length of skirts.
- .10 Fill voids and repair flaws from the casting process with bronze rod, TIG welded.
- .11 Obtain review by Departmental Representative.
- .2 Clean welds to remove scale.
  - .1 Welds visible from the outside of altar.
    - .1 Shape surface of weld joints with chisels, chasing tools, files, and or rotary burs to blend in with the surrounding cast bronze surface.
    - .2 No disc grinders to be used on outer surfaces.
    - .3 Inner welds, on underside of altars, that will not be visible, can be left un-ground, but must be cleaned to remove any scale.
  - .2 Modify bronze legs in accordance with stone altar tops' opening template.
    - .1 Cut away inside top corners of bronze legs to depth and width required for installation of display cases.
- .3 Shop Finishing Methods – Bronze Components.
  - .1 Sandblast surfaces.
  - .2 Patinate bronze surfaces with thin brown patina.
  - .3 Wash to remove chemical residues.
  - .4 Lightly hand-buff surface with steel wool and/or bronze brushes to bring out highlights
  - .5 Final patina: rubbed gold-brown colour with minor highlights and shadows.
  - .6 Hot wax.
- .4 Stone Feet Attachment.
  - .1 Drill holes in prefinished stone feet to accept anchor bolt fasteners.
  - .2 Attach bronze legs to stone feet with stainless steel anchor bolts.
  - .3 Ensure a tight fit between stone and bronze elements with minimal gaps. Some filing or grinding of the bronze elements may be necessary to ensure a tight fit.
- .5 Stone Altar Tops.
  - .1 Place stone altar top on altar structure base frame in accordance with Contract Drawings.
  - .2 Install bronze angle brackets as indicated on Contract Drawings.
  - .3 Secure bronze angle brackets in place with epoxy adhesive. Follow manufacturer's written instructions for curing time.

- .4 Test-fit display cases in stone altar top openings. Make adjustments to bronze and stone components, if necessary.
- .5 Drill holes to accept decorative bronze medallion specific to each altar.
  - .1 Exact location of hole to be coordinated with Departmental Representative.
  - .2 Medallions will be pinned and adhered to top by Departmental Representative after final assembly.

### **3.2 DISASSEMBLY FOR PACKING AND DELIVERY TO SITE**

- .1 Disassemble altar structures into three components:
  - .1 Display cases.
  - .2 Stone altar tops.
  - .3 Altar structure base frames.

### **3.3 PACKAGING, HANDLING AND TRANSPORT**

- .1 Brace, secure, protect, package and transport components to maintain squareness and rigidity during shipment and installation in accordance with Section 01 65 00 – Product Delivery Requirements.

### **3.4 SITE INSTALLATION**

- .1 Perform installation and assembly work in accordance with design and dimensions shown on Contract Drawings.
- .2 Place altar structure base frames in locations where indicated on Contract Drawings.
  - .1 Confirm locations and method of placement with Departmental Representative prior to placement.
- .3 Install and attach stone altar tops to altar structure base frames.
- .4 Install glass display cases in openings in carved stone altar tops.
- .5 Clean and protect assembled altar structures in accordance with Section 01 10 00 – General Instructions.

**END OF SECTION**