

## SECTION 676 CONTROLLER CABINETS

### **676-1 Description.**

Install NEMA cabinets Types 1, 2, 3, 4, 5, and cabinets types used for Model 170 controller assemblies.

### **676-2 Materials.**

Use Controller Cabinets listed on the Department's Approved Product List (APL). Ensure that all Controller Cabinets are marked in accordance with Section 603 and the markings are visible after installation.

### **676-3 Installation Requirements.**

**676-3.1 General:** Install controller cabinets in accordance with the Design Standards, Index No. 17841. Ensure that all conduit entrance holes or other holes which are field drilled are reamed and free of burrs. Make all conduit connections to the cabinet watertight by the use of clear silicone rubber sealant.

#### **676-3.2 Pole Mounted Cabinets (Types 1, 2, 3, and 4):**

- (a) Fasten the pole mounted hardware which is furnished with the cabinet to the cabinet, making all connections watertight.
- (b) Use stainless steel bands for mounting cabinets onto steel strain poles.
- (c) Use stainless steel bands or lead anchors (or equivalent) for mounting cabinets onto concrete strain poles.
- (d) Use stainless steel bands or lag bolts for mounting cabinets onto wood poles.

#### **676-3.3 Base Mounted Cabinets (Types 4, 5, and types used for Model 170 Controller Assemblies):**

- (a) Use anchor bolts to fasten base mounted cabinets to the concrete base.
- (b) Seal the joint between the bottom of the cabinet and the concrete base (inside and outside of cabinet) with a clear silicone rubber sealant.
- (c) Construct the base for the cabinets with concrete in accordance with Section 347. Make the concrete base for the cabinet level, free of honeycombs and as smooth as possible. Temporarily seal the end of conduit risers located in the base before placing the concrete. Position the end of the conduit risers a minimum of 2 inches above the finished surface of the concrete base.

#### **676-3.4 Field Wiring:**

- (a) Terminate signal cable, interconnect cable, and loop lead-in wires on the appropriate terminal strips in the controller cabinet with insulated terminal lugs. Use a calibrated ratchet type crimping tool to install the insulated terminal lugs onto the field wires.
- (b) Label spare circuits of the signal and interconnect cables and connect them to the cabinet ground bussbar.
- (c) Neatly bundle and identify all field wiring cables in the controller cabinet.

**676-3.5 Grounding:** Ground all controller cabinets in accordance with the requirements of Section 620. Keep the ground wire from the controller cabinet ground bussbar to the ground rod assembly or array as short as possible. Ensure the ground wire is not in contact with any other part of the cabinet.

**676-4 Method of Measurement.**

**676-4.1 General:** Measurement for payment will be in accordance with the following work tasks.

**676-4.2 Furnish and Install:** The Contract unit price each for controller cabinet, furnished and installed, will include all materials specified in the Contract Documents, and all labor, equipment, and miscellaneous materials necessary for a complete and acceptable installation.

**676-4.3 Furnish:** The Contract unit price each for controller cabinet, furnished, will include all materials and all shipping and handling costs involved in delivery as specified in the Contract Documents.

**676-4.4 Install:** The Contract unit price each for controller cabinet, installed, will include all labor, equipment, and miscellaneous materials necessary for a complete and acceptable installation. The Engineer will supply all materials as specified in the Contract Documents.

**676-4.5 Modify:** The Contract unit price each for controller cabinet, modified as specified in the Contract Documents, will include all labor, equipment, and miscellaneous materials necessary for a complete and acceptable installation.

**676-5 Basis of Payment.**

Price and payment will be full compensation for all work specified in this Section.

Payment will be made under:

Item No. 676- 1-      Controller Cabinet - each.