

Section 16160

CABINETS AND ENCLOSURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specifications for cabinets and enclosures for housing of control panels, motor controls and related electrical components.

1.02 REFERENCES

- A. National Electrical Manufacturers Association (NEMA).
- B. American National Standards Institute/National Fire Protection Association (ANSI/NFPA), NFPA 70 - National Electrical Code (NEC), Article 373 - Cabinets, Cutout Box, and Meter Socket Enclosures.
- C. Underwriters Laboratories (UL), UL 50 - Safety for Cabinets and Boxes.

1.03 SUBMITTALS

- A. Submit the following under provisions of Section 01300 – Submittal Procedures:
 - 1. Manufacturer's cut sheets and catalog data
 - 2. Instruction for handling and storage
 - 3. Installation instructions
 - 4. Dimensions and weights

1.04 DELIVERY, STORAGE AND HANDLING

- A. Have cabinets and enclosures packed and crated to permit ease of handling and to provide protection from damage during shipping, handling and storage.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. The EMF Company

- B. Hennessey Products, Inc.
- C. Hoffman Industrial Products
- D. Pauluhn Electric Manufacturing Company
- E. Weigman Company
- F. Rose Enclosure
- G. N.E.M.A. Enclosure Mfg. Co.

2.02 MATERIALS AND EQUIPMENT

- A. Sheet Metal Boxes
 - 1. Provide enclosures manufactured in accordance with NEMA 250 and NEC Article 373. Fabricate outdoor NEMA 4X enclosures from minimum 14 gauge, 316 stainless steel for all areas. Additional white painted coatings shall be provided for the main control panel and any other enclosures which contain electrical components that could be damaged by excessive heat.
 - 2. Dimensions and special features are shown on the Drawings.
 - 3. Construct outdoor enclosures with continuously welded seams ground smooth. No sealants of any nature may be used.
 - 4. Additional material thickness and bracing requirements shall be determined by the manufacturer to provide the strength required by the standard listed. The bracing shall be provided in such a way as to minimize the protrusion into the wiring and the equipment spaces.
 - 5. Install the door with a stainless steel continuous hinge, stainless steel padlock handle with gasket and stainless steel hardware.
 - 6. Furnish the door with oil-resistant neoprene gasket attached with oil-resistant adhesive and held in place with aluminum retaining strips.
 - 7. For large enclosures provide a single, 3/4-inch minimum, door handle that provides a 3-point latching through latch rods with rollers. Provide rollers with at least 3/4-inch diameter.
 - 8. Gasketed overlapping doors may be used instead of a center post.
 - 9. Provide heavy duty lifting eyes of suitable material.

10. Fabricate the enclosure with a stud-mounted panel inside. Make panels from 12-gauge steel painted with white enamel finish.
11. Weld mounting feet to the enclosure if called for on the Drawing.
12. Include a high impact plastic data pocket in the enclosure.
13. Provide ground connections on the enclosures to enable grounding of the enclosure with a No. 2 AWG conductor.
14. Equip free-standing outdoor cabinets with inner and outer door restraint bars to prevent door swing during windy conditions.

B. Hardware

1. Mounting Hardware: 316 stainless steel
2. Conduit Connectors: Watertight as manufactured by Myers Hubs, or equal. Provide hubs of this nature for conduit connections to all enclosures. All such hubs shall be equipped with an auxiliary grounding lug that is securely connected to the facility grounding grid.

2.03 TESTING

- A. Test cabinets and enclosures in accordance with UL requirements so unit qualifies for a UL label.

PART 3 EXECUTION

3.01 PREPARATION

- A. Review Drawings and determine how many enclosures of each kind are required and check if supplied quantity is sufficient.
- B. Check the mounting pads or foundations for proper mounting dimensions and features, including grounding conductor stub-up.

3.02 INSTALLATION

- A. Use enclosures described in this specification only above grade.
- B. Install enclosures in accordance with the NEC in locations as indicated on the Drawings.
- C. Install enclosures in readily accessible locations to facilitate general operations, wire pulls, maintenance and repair.

- D. Plug unused conduit openings.
- E. Make conduit connections to the enclosures with watertight conduit connectors.
- F. Identify all components in cabinets with phenolic nameplates.
- G. Use pre-printed tubular heat-shrink type wire and cable markers to label each end of all conductors.

END OF SECTION