

# **WESTERN UNDERGROUND COMMITTEE**

## **GUIDE 2.13 (2.13/04/0279)**

### **SECURITY FOR PADMOUNTED EQUIPMENT ENCLOSURES**

NOTE: This "Guide" summarizes the opinions, recommendations, and practices of the Western Underground Committee members and is issued only to assist these members in preparing their own specifications, or in making recommendations to specification agencies. Thus, this "Guide" may not reflect the complete requirements of each individual utility and is not binding upon them.

#### **1.0 SCOPE**

This guide provides requirements for tamper resistant design of padmounted equipment enclosures consistent with public safety, utility security, and equipment operating conditions.

#### **2.0 GENERAL**

- 2.1 A typical padmounted equipment enclosure consists of a surrounding case or housing for equipment to prevent unauthorized access to protect people against accidental contact of energized parts and protect equipment against weather hazards. The enclosure is mounted on a pad, above ground level, and may be ventilated to permit circulation of air.
- 2.2 Entry into the enclosure shall be through either an access door(s) or hood(s) as specified by the user.

#### **3.0 USER**

- 3.1 Structural Strength and Integrity Test
  - 3.1.1 The structural strength and integrity test shall comply with the latest NEMA Official Standards Proposed American National Standard for Testing the Design and Padmounted Compartmental Transformers for Enclosure Security, Pub. No. TR-P9-1977 except as modified below.

3.1.1.1 Table 1 of NEMA TR-P9-1977 shall be modified as follows:

Inward Axial Force	50 pounds
Prying Leverage Test	75 foot-pounds
Pull Test	150 pounds

3.1.1.2 The probing wire of NEMA TR-P9-1977 paragraph 3.1.3 shall be number 14 AWG solid soft drawn copper.

3.1.1.3 The pry bar tip of NEMA TR-P9-1977 fig. 1 shall be 0.625 inches wide by 0.065 inches thick.

3.1.1.4 The pry test of NEMA TR-P9-1977 paragraph 4.3 shall be applied first in one direction then in the opposite direction, then repeated for a total of two applied forces in each direction.

3.1.2 Design test data to verify compliance with the tests specified in NEAM TR-P9-1977 as modified above shall be furnished by the manufacturer.

#### **4.0 CONSTRUCTION**

4.1 The construction shall be such that:

- 4.1.1 It prevents the entry of foreign objects such as sticks, rods, or wires.
- 4.1.2 It inhibits dismantling of the equipment.
- 4.1.3 It is free of areas, which could provide access by forcing techniques.
- 4.1.4 Panels shall be fastened or hinged to resist disassembly, breaking, or prying open from the outside. Normal entry shall be possible only with the use of proper access tools. Latches and other provisions for locking hinged panels shall be furnished.

- 4.1.5 There shall be no exposed screws, bolts, or other fastening or hinging devices, which are externally; removable (with the exception of pentahead bolts provided for extra security) that would provide access to energized parts of the enclosure.
- 4.2 The external surfaces of the equipment enclosure shall be constructed of steel, 13 USS gauge minimum or approved equal.
- 4.3 In addition to the regular locking provisions, all access doors shall be secured by a recessed, captive, pentahead bolt which threads into a nut with a blind hole. A pentahead bolt shall be considered “captive” when the retention scheme will prevent it from being readily removed during normal operation of the door(s) or hood(s). The recess is to be nonrotating. The dimensions of the pentahead bolt and nonrotating recess shall comply with Figure 11 of ANSI C57.12.26-1975. If all doors may be secured with a single bolt, one bolt will be sufficient.
- 4.4 Each latched door(s) shall be latched at a minimum of three points. In addition to the three point latching, one pentahead bolt shall be coordinated with the latch and padlock to prevent unlatching and insertion of the padlock into the hasp when and until the bolt head is essentially completely seated, respectively. Low profile cabinets, with access flip-up hoods, need only padlock and pentahead bolt provisions, and shall be coordinated to prevent insertion of the padlock into the hasp until the bolt head is essentially completely seated.
- 4.5 The padlocking device shall be so designed and located so as to resist prying or breaking off by screwdrivers, wrecking bars, tire irons, single-socket lug wrenches, or other readily accessible tools.
- 4.6 The edges of the access doors or hoods shall be formed to provide:
  - 4.6.1 A close fitting mating surface, with internal insertion-prevention lip that will be shaped to prohibit entry or prying by screwdrivers, wrecking bars, tire irons, single-socket lug wrenches, or other readily accessible tools.
  - 4.6.2 A rigid panel which, in conjunction with a handle-linkage-latching mechanism with three (or more) point latching, will resist bending in the event that sufficient force is applied to distort the compartment or compartment door(s) and permit prying access to the door edges.

- 4.6 Hinge pins shall be passivated AISI Type 304 stainless steel or equivalent corrosion-resistant metal.
- 4.7 If a handhole cover is exposed, it shall be secured against tampering by some means accessible only from the inside of the compartment.
- 4.8 The bottom edge of the enclosure shall provide for flush mounting on a flat, rigid mounting surface to prevent wire entry into the compartment.