

Table 3.3 - Minimum Requirements for Hands-on Work. See Note (d)				
NOMINAL OPERATING VOLTAGE	MAXIMUM VOLTAGE of EXPOSED conductors		WHEN THE PROTECTIVE BARRIERS ARE REMOVED AND ANY EXPOSED CIRCUIT IS:	
	Line - to - Line	Line - to - Ground	Being POSITIVELY DE-ENERGIZED See Note (a)	ENERGIZED See Notes (b) & (c)
CLASS A 50 V & BELOW	Inherently safe NEC CLASS 2 or 3 ckts. 50 V and below		Anyone may work alone.	Anyone may work alone.
CLASS B 120/208 V ac 125 V dc	208 V	130 V	A Qualified Person may work alone.	A Qualified Person may work alone if in communication with nearby aid. Safety glasses and insulated hand-tools shall be used. See Note (f)
CLASS C 240 V ac 250 V dc	250 V	240 V	Same as CLASS B	In addition to CLASS B requirements, a Safety Watch and rubber gloves are required. (see paragraph 4.7)
CLASS D 480/277 V ac 251-600 V dc	600 V	600 V	A Safety Watch and a Qualified Person (see definition in Chapter 2) are required to positively deenergize the circuit(s). Thereafter, one Qualified Person may work alone.	In addition to requirements of CLASS C , a nonconducting hard hat (ANSI Z89.2) and an approved, written procedure shall be used. See Note (e)
CLASS E OVER 600 V	OVER 600 V		Same as CLASS D except ... thereafter, two Qualified Persons working together are required. See Note (d)	Same as CLASS D except use live-line (insulating) tools NOT insulated hand- tools.

NOTES FOR TABLE 3.3

(a) A circuit is positively de-energized when:

- it has been disconnected from all sources of energy operated over 50 volts,
- disconnecting means has been visually checked, and has been safety tagged to prevent change of state
- the circuit (s) tested to “0” volts with a verified test instrument and, if Class D or E,
- the circuit has been shorted and grounded with an approved safety ground.

In addition, Class E circuits shall have at least one visible break not susceptible to arc-over. See para. 4.1 (b) Equipment parts, circuits, and energy sources which have not been positively de-energized in accordance with note (a) above shall be considered energized, operational, and live.

(c) Confined Spaces, as used in this Section 2.0 are those areas that lack sufficient work room and reaction space. They exist around electrical equipment wherever adequate NEC access clearances have been provided. In confined spaces (except for Class A circuits), the following additional precautions shall be taken:

- (1) Cover any exposed live parts and grounded surfaces, adjacent to the intended work area, that may be contacted by dropped, insulated hand-tool or an unprotected part of a worker reacting to a slip. Insulating blankets (currently tested), clean G-11, and fire-retardant wood panels are approved covering materials. Consider the use of flame-resistant clothing as back-up protection.
- (2) When working in confined spaces within massive grounds, the precautions for massive grounds also apply (see para.4.16).

(d) This table shall apply except where other portions of this Section 2.0 specifically state otherwise (see paragraphs 4.13 and 4.14 in Chapter 4, “Temporary Operations”, and Chapter 6, “Capacitors and Cap Banks”).

(e) Procedure shall be reviewed by safety and approved by cognizant engineer and the workers supervisor

(f) Metermans gloves (Class 0) may be used in lieu of insulated tools when working on energized Class C circuits.