

National Electrical Safety Code Committee, Accredited Standards Committee C2

National Electrical Safety Code®

Interpretation

Section 44. Additional Rules for Supply Employees

Rule 441 Table 441-1 AC Live Work Minimum Approach Distance (2002 Edition, page 228) IR540

Footnote #2 explains that for single-phase lines off three-phase systems, the phase-to-phase voltage of the system is to be used to determine the minimum approach distance. If this interpretation is correct, a lineman working on a single-phase line, phase-to-ground voltage of 14.4 kV, must maintain a working distance of 2–10 (phase-to-phase system voltage would be 24,940, and therefore, the minimum approach distance is 2–10). This would then apply in rural settings where no possibility of contact with another phase exists while working on a single-phase line miles from the three-phase take-off point. This is a contradiction with the OSHA ruling, which states that phase-to-phase minimum approach distances are to be used if the possibility of contact with another phase exists. Would the phase-to-ground minimum approach distances only apply in cases where remote generation supplies only single-phase power and is not connected to any three-phase system?

Discussion: The concern is that most operations personnel are under the assumption that they may work under the phase-to-ground minimum approach distances when no possibility of contact with another phase exists.

Interpretation

The Interpretations Subcommittee has considered the subject Interpretation Request for Table 444-1 and has developed a consensus report as follows:

“As stated in the above request for interpretation, Footnote 2 of Table 441-1 requires use of the phase-to-phase system voltage for a single-phase line off a three-phase system. Note that both Footnote 1 and Footnote 2 apply only to the first column, which is used to select the appropriate voltage level, thus determining the correct row in the table. Footnote 1 and Footnote 2 do not apply to the minimum approach distances shown in Column 2 and Column 3. See also IR527 for a discussion of application of footnotes to tables.

Choice of the appropriate “distance to employee” column (Column 2 or Column 3) is dependent upon the physical orientation of the workers to the energized conductor or conductors.

In the example of a single-phase line, the minimum approach distance shown in the Phase to ground column (2 ft–7 in) may be used because there is no possibility of contact with another phase conductor. However, if the line to be worked is multi-phase, the Phase to phase column must be used if the worker will be positioned: (1) between two or more phase conductors, or (2) near enough to another phase conductor such that there is any

possibility of contact with that conductor. Note that the application of both the voltage ranges and the minimum approach distances shown in Table 441-1 has been harmonized with OSHA requirements.

Finally, it is asked if the Phase-to-ground minimum approach distances would only apply to an isolated single-phase system not connected to any three-phase system. While these distances do apply to isolated single-phase systems, this is not the only application. See the discussion in the preceding paragraph.”