

TABLE 3 Approach Boundaries, Alternating-Current Systems to Energized Electrical Conductors or Circuit Parts for Shock Protection for (All dimensions are distance from energized electrical conductor or circuit part to employee.)			
(1) Nominal System Voltage Range, Phase to Phase^a	Limited Approach Boundary^b		(4) Restricted Approach Boundary^b; Includes Inadvertent Movement Adder
	(2) Exposed Movable Conductor^c	(3) Exposed Fixed Circuit Part	
<50 V	Not Specified	Not Specified	Not Specified
50 V – 150 V ^d	3.0 m (10 ft 0 in.)	1.0 m (3 ft 6 in.)	Avoid contact
151 V – 750 V	3.0 m (10 ft 0 in.)	1.0 m (3 ft 6 in.)	.3 m (1 ft 0 in.)
751 V – 15 kV	3.0 m (10 ft 0 in.)	1.5 m (5 ft 0 in.)	.7 m (2 ft 2 in.)
15.1 kV – 36 kV	3.0 m (10 ft 0 in.)	1.8 m (6 ft 0 in.)	.8 m (2 ft 9 in.)
36.1 kV – 46 kV	3.0 m (10 ft 0 in.)	2.5 m (8 ft 0 in.)	.8 m (2 ft 9 in.)
46.1 kV – 72.5 kV	3.0 m (10 ft 0 in.)	2.5 m (8 ft 0 in.)	1.0 m (3 ft 6 in.)
72.6 kV – 121 kV	3.3 m (10 ft 8 in.)	2.5 m (8 ft 0 in.)	1.0 m (3 ft 6 in.)
121 kV – 145 kV	3.4 m (11 ft 0 in.)	3.0 m (10 ft 0 in.)	1.2 m (3 ft 10 in.)
145 kV – 169 kV	3.6 m (11 ft 8 in.)	3.6 m (11 ft 8 in.)	1.3 m (4 ft 3 in.)
169 kV – 242 kV	4.0 m (13 ft 0 in.)	4.0 m (13 ft 0 in.)	1.7 m (5 ft 8 in.)
242 kV – 362 kV	4.7 m (15 ft 4 in.)	4.7 m (15 ft 4 in.)	2.8 m (9 ft 2 in.)
362 kV – 550 kV	5.8 m (19 ft 0 in.)	5.8 m (19 ft 0 in.)	3.6 m (11 ft 8 in.)
550 kV – 800 kV	7.2 m (23 ft 9 in.)	7.2 m (23 ft 9 in.)	4.9 m (15 ft 11 in.)

^a For single-phase systems, select the range that is equal to the system's maximum phase-to-ground voltage multiplied by 1.732.

^b See definition in Article 10 and text in 130.4 (D)(2) and Annex C for elaboration.

^c This term describes a condition in which the distance between the conductor and a person is not under the control of the person. The term is normally applied to overhead line conductors supported by poles.

^d This includes circuits where the exposure does not exceed 120V.

TABLE 4 Approach Boundaries^a Direct-Current Voltage Systems to Energized Electrical Conductors or Circuit Parts for Shock Protection,			
Nominal Potential Difference	Limited Approach Boundary		Restricted Approach Boundary; Includes Inadvertent Movement
	Exposed Movable Conductor^b	Exposed Fixed Circuit Part	
<50 V	Not Specified	Not Specified	Not Specified
50 V – 300 V	3.0 m (10 ft 0 in.)	1.0 m (3 ft 6 in.)	Avoid contact
301 V – 1 kV	3.0 m (10 ft 0 in.)	1.0 m (3 ft 6 in.)	.3 m (1 ft 0 in.)
1.1 kV – 5 kV	3.0 m (10 ft 0 in.)	1.5 m (5 ft 0 in.)	.5 m (1 ft 5 in.)
5 kV – 15 kV	3.0 m (10 ft 0 in.)	1.5 m (5 ft 0 in.)	.7 m (2 ft 2 in.)
15.1 kV – 45 kV	3.0 m (10 ft 0 in.)	2.5 m (8 ft 0 in.)	.8 m (2 ft 9 in.)
45.1 kV – 75 kV	3.0 m (10 ft 0 in.)	2.5 m (8 ft 0 in.)	1.0 m (3 ft 6 in.)
75.1 kV – 150 kV	3.3 m (10 ft 8 in.)	3.0 m (10 ft 0 in.)	1.2 m (3 ft 10 in.)
150.1 kV – 250 kV	3.6 m (11 ft 8 in.)	3.6 m (11 ft 8 in.)	1.6 m (5 ft 3 in.)
250.1 kV – 500 kV	6.0 m (20 ft 0 in.)	6.0 m (20 ft 0 in.)	3.5 m (11 ft 6 in.)
500.1 kV – 800 kV	8.0 m (26 ft 0 in.)	8.0 m (26 ft 0 in.)	5.0 m (16 ft 5 in.)

^a All dimensions are distance from exposed energized electrical conductors or circuit parts to worker.

^b This term describes a condition in which the distance between the conductor and a person is not under the control of the person. The term is normally applied to overhead line conductors supported by poles.