

NFPA 70E Table 130.4 (C) (a)

Approach Boundaries to Energized Electrical Conductors or Circuit Parts for Shock Protection for Alternating Current Systems (all dimensions are distances from energized electrical conductor or circuit parts to employee)

(1)	(2)	(3)	(4)	(5)
<i>Limited Approach Boundary^b</i>				
<i>Nominal System Voltage Range, Phase to Phase^d</i>	<i>Exposed Movable Conductor</i>	<i>Exposed Fixed Circuit Part</i>	<i>Restricted Approach Boundary^b; Includes Inadvertent Movement Adder</i>	<i>Prohibited Approach Boundary^b</i>
50 V	Not Specified	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	Avoid Contact
301 V – 750 V	3.0 m (10 ft. 0 in.)	1.0 m (3 ft. 6 in.)	0.3 m (1 ft. 0 in.)	25 mm (0 ft. 1 in.)
751 V – 15 kV	3.0 m (10 ft. 0 in.)	1.5 m (5 ft. 0 in.)	0.7 m (2 ft. 2 in.)	0.2 m (0 ft. 7 in.)
15.1 kV – 36 kV	3.0 m (10 ft. 0 in.)	1.8 m (6 ft. 0 in.)	0.8 m (2 ft. 7 in.)	0.3 m (0 ft. 10 in.)
36.1 kV – 46 kV	3.0 m (10 ft. 0 in.)	2.5 m (8 ft. 0 in.)	0.8 m (2 ft. 9 in.)	0.4 m (1 ft. 5 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. 3 in.)	0.1 m (2 ft. 2 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. 4 in.)	0.8 m (2 ft. 9 in.)
138 kV – 145 kV	3.4 m (11 ft. 0 in.)	3.0 m (10 ft. 0 in.)	1.2 m (3 ft. 10 in.)	1.0 m (3 ft. 4 in.)
161 kV – 169 kV	3.6 m (11 ft. 8 in.)	3.6 m (11 ft. 8 in.)	1.3 m (4 ft. 3 in.)	1.1 m (3 ft. 9 in.)
230 kV – 242 kV	4.0 m (13 ft. 0 in.)	4.0 m (13 ft. 0 in.)	1.3 m (4 ft. 3 in.)	1.6 m (5 ft. 2 in.)
345 kV – 363 kV	4.7 m (15 ft. 4 in.)	4.7 m (15 ft. 4 in.)	2.8 m (9 ft. 2 in.)	2.6 m (8 ft. 8 in.)
500 kV – 550 kV	5.8 m (19 ft. 0 in.)	5.8 m (19 ft. 0 in.)	3.6 m (11 ft. 10 in.)	3.5 m (11 ft. 4 in.)
765 kV - 800 kV	7.2 m (23 ft. 9 in.)	7.2 m (23 ft. 9 in.)	4.9 m (15 ft. 11 in.)	4.7 m (15 ft. 5 in.)

NFPA 70E Table 130.4 (C) (a)

Approach Boundaries to Energized Electrical Conductors or Circuit Parts for Shock Protection for Direct Current Voltage Systems

(1)	(2)	(3)	(4)	(5)
<i>Limited Approach Boundary^b</i>				
<i>Nominal Potential Difference</i>	<i>Exposed Movable Conductor^c</i>	<i>Exposed Fixed Circuit Part</i>	<i>Restricted Approach Boundary^b; Includes Inadvertent Movement Adder</i>	<i>Prohibited Approach Boundary^b</i>
<100 V	Not Specified	Not Specified	Not Specified	Not Specified
100 V – 300 V	3.0 m (10 ft. 0 in.)	1.0 m (3 ft. 6 in.)	Avoid Contact	Avoid Contact
301 V – 1 kV	3.0 m (10 ft. 0 in.)	1.0 m (3 ft. 6 in.)	0.3 m (1 ft. 0 in.)	25 mm (0 ft. 1 in.)
1.1 kV – 5 kV	3.0 m (10 ft. 0 in.)	1.5 m (5 ft. 0 in.)	0.5 m (1 ft. 5 in.)	0.1 m (0 ft. 4 in.)
5.1 kV – 15 kV	3.0 m (10 ft. 0 in.)	1.5 m (5 ft. 0 in.)	0.7 m (2 ft. 2 in.)	0.2 m (0 ft. 7 in.)
15.1 kV – 45 kV	3.0 m (10 ft. 0 in.)	2.5 m (8 ft. 0 in.)	0.8 m (2 ft. 9 in.)	0.4 m (1 ft. 5 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. 2 in.)	0.7 m (2 ft. 1 in.)
75.1 kV – 150 kV	3.3 m (10 ft. 8 in.)	3.0 m (10 ft. 0 in.)	1.2 m (4 ft. 0 in.)	1.0 m (3 ft. 2 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.)	1.5 m (5 ft. 0 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.)	3.3 m (10 ft. 10 in.)
500.1 kV – 800 kV	8.0 m (26 ft. 0 in.)	8.0 m (26 ft. 0 in.)	5.0m (16 ft. 5 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 normally is applied to overhead line conductors supported by poles.

**NFPA 70E Table 130.7 (C) (11)
Protective Clothing Characteristics**

Typical Protective Clothing Systems

Hazard/Risk Category	Clothing Description (Typical number of clothing layers is given in parenthesis)	Required Minimum Arc Rating of PPE [J/cm ² (cal/cm ²)]
0	Non-melting, flammable materials (e.g., untreated cotton, wool, rayon, or silk, or blends of these materials) with a fabric weight of at least 4.5 oz/yd ²	N/A
1	FR shirt and FR pants or FR coverall	16.74(4)
2	Cotton underwear – conventional short sleeve and brief/shorts, plus FR shirt and FR pants (1 or 2)	33.47 (8)
3	Cotton underwear plus FR shirt and FR pants plus FR coverall, Cotton underwear plus to FR coveralls (2 or 3)	104.6 (25)
4	Cotton underwear plus FR shirt and FR pants plus multilayer flash Suit (3 or more)	167.36 (40)