

	crossarms or other supports at different levels (excepting on related line and buck arms) on the same pole and in adjoining midspans											
8	Communication Conductors and Service Drops	-	-	12 (<u>j</u> , <u>rr</u>)	48 (<u>k</u> , <u>l</u> , <u>m</u> , <u>n</u> , <u>pp</u>)	48 (<u>k</u>)	72 (<u>m</u> , <u>n</u>)	72 (<u>m</u>)	72	78	87 (<u>gg</u>)	147 (<u>hh</u>)
9	Supply Conductors Service Drops and Trolley Feeders, 0 - 750 Volts	-	-	48 (<u>k</u> , <u>l</u> , <u>m</u> , <u>n</u> , <u>pp</u>)	24 (<u>h</u> , <u>k</u> , <u>m</u> , <u>o</u>)	48 (<u>k</u> , <u>m</u> , <u>p</u>)	48 (<u>k</u> , <u>m</u> , <u>q</u>)	72 (<u>m</u> , <u>nn</u>)	72	78	87 (<u>gg</u>)	147 (<u>hh</u>)
10	Supply conductors, 750 – 7,500 volts	-	-	48 (<u>k</u>)	48 (<u>k</u> , <u>m</u> , <u>p</u>)	48 (<u>m</u> , <u>o</u> , <u>r</u> , <u>ee</u>)	48 (<u>m</u> , <u>q</u>)	48 (<u>m</u> , <u>q</u>)	48 (<u>q</u>)	60 (<u>ff</u>)	90 (<u>gg</u>)	150 (<u>hh</u>)
11	Supply conductors, 7,500 – 20,000 volts	-	-	72 (<u>m</u> , <u>n</u>)	48 (<u>k</u> , <u>m</u> , <u>q</u>)	48 (<u>m</u> , <u>q</u>)	48 (<u>m</u> , <u>o</u> , <u>q</u> , <u>r</u> , <u>ee</u>)	48 (<u>m</u> , <u>q</u>)	48 (<u>q</u>)	60 (<u>ff</u>)	90 (<u>gg</u>)	150 (<u>hh</u>)
12	Supply conductors, 20,000 – 75,000 volts	-	-	72 (<u>m</u>)	72 (<u>m</u> , <u>nn</u>)	48 (<u>m</u> , <u>q</u>)	48 (<u>m</u> , <u>q</u>)	48 (<u>o</u> , <u>q</u>)	48 (<u>o</u> , <u>q</u>)	60 (<u>ff</u>)	90 (<u>gg</u>)	150 (<u>hh</u>)
13	Supply conductors, more than 75,000 volts	-	-	72	72	60 (<u>q</u>)	60 (<u>q</u>)	60 (<u>q</u>)	60 (<u>q</u>)	60 (<u>ff</u>)	90 (<u>gg</u>)	150 (<u>hh</u>)
	Vertical clearance between conductors on related line arms and buck arms											
14	Line arms above or below related buck arms (<u>s</u> , <u>t</u>)	-	-	6	12 (<u>u</u>)	18 (<u>u</u>)	18 (<u>u</u>)	24	48	60 (<u>ff</u>)	90 (<u>gg</u>)	150 (<u>hh</u>)
	Horizontal separation of conductors on same crossarm											
15	Pin spacing of longitudinal conductors vertical conductors and service drops (<u>zz</u>)	-	-	3 (<u>x</u>)	11½ (<u>h</u> , <u>x</u>)	11½ (<u>x</u>)	17½ (<u>x</u>)	24 (<u>x</u>)	48	60 (<u>ff</u>)	90 (<u>gg</u>)	150 (<u>hh</u>)
	Radial separation of conductors on same crossarm, pole or structure— incidental pole wiring											
16	Conductors, taps or lead wires of different circuits (<u>y</u> , <u>x</u> , <u>z</u> , <u>zz</u>)	-	-	3 (<u>x</u>)	11½ (<u>h</u> , <u>x</u>)	11½ (<u>x</u>)	17½ (<u>x</u>)	24 (<u>x</u>)	48	60 (<u>ff</u>)	90 (<u>gg</u>)	150 (<u>hh</u>)
16a	Uncovered,	-	15	15	15	18	18	18	18	24	36	120

	grounded, non-dielectric fiber optic cables on metallic structures, in transition (ss)											
17	Conductors, taps or lead wires of the same circuit (v, z, aa, zz)	-	-	3	3	6	6	12	24	60 (ff)	90 (gg)	150 (hh)
	Radial separation between guys and conductors											
18	Guys passing conductors supported on other poles, or guys approximately parallel to conductors supported on the same poles	-	-	3	11½	11½	17½	24	36	36 (ff)	78 (gg)	138 (hh)
19	Guys and span wires passing conductors supported on the same poles	(cc)	-	3 (bb)	3	6	9	12	18	24	48 (ii)	86 (jj)
	Vertical and horizontal insulators clearances between conductors											
20	Vertical clearance between conductors of the same circuit on horizontal insulators	-	-	-	-	24	24	24	36 or 48 (ll, mm)	48 (mm)	48 (mm)	48 (mm)
	Vertical clearance above supply and/or communication lines											
21	Antennas and associated elements on the same support structure. (tt, uu)	24 (vv)	48 (vv)	24 (ww)	48 (vv, xx)	72	72	72	120 (vv, yy)	-	-	-

References to Rules Modifying Minimum Clearances in Table 2

- (a) The clearances in column D are also applicable to supply cables of any voltage under certain conditions [57.4](#)
- (b) Clearances for guys and span wires apply vertically at crossings (see case 18 for radial clearances from conductors)
1. Supply guys and span wires from conductors [56.4-C](#)
 2. Supply guys and span wires from guys and span wires [56.4-D1](#)
 3. Communication guys and span wires from conductors [86.4-C](#)
 4. Communication guys and span wires from guys and span wires [86.4-D1](#)
- (c) Not applicable between messengers or span wires of the same system
1. Supply messengers [57.4-E](#)
 2. Trolley span wires [77.4-D](#)
 3. Communication messengers [87.4-G](#)

- (d) Protection Required on guys, span wires, messengers and cables where within trolley throw
 - 1. Supply guys and span wires [56.4-B2](#)
 - 2. Supply messengers and cables [57.4-B2](#)
 - 3. Communication guys and span wires [86.4-B2](#)
 - 4. Communication messengers [87.4-B2](#)
- (e) Not applicable to certain conductors supported on trolley span wires
 - 1. Trolley contact and feeder conductors [74.4-G2](#)
 - 2. Trolley feeder conductors [78.1](#)
 - 3. Trolley system communication conductors [78.2](#)
 - 4. Foreign conductors [78.3](#)
- (f) Increased clearance required over trolley contact conductors 750 - 7,500 volts [74.4-G2](#)
- (g) Shall be increased for voltages above 75,000 as required by Table 2, Columns I, J and K N/A
- (h) May be reduced for certain conductors of Class T Circuits of the same system [74.4-C](#)
- (i) May be reduced for service drops under special conditions
 - 1. Supply service drops and communication line conductors [54.8-C1a](#)
 - 2. Supply service drops and communication service drops [54.8-C4](#)
 - 3. Communication service drops and supply line conductors [84.8-D1a](#)
 - 4. Communication service drops and supply service drops [84.8-D4](#)
- (j) May be reduced or shall be increased for certain communication conductors or cables
 - 1. Open wire conductors, attached to poles, within 3 feet of topmost conductor [84.4C1c](#)
 - 2. Line conductors of police or fire-alarm circuits and service drops from other communication circuits [84.8-D1b](#)
 - 3. Cables and messengers attached to poles [87.4-C3](#)
- (k) Special clearances for 0 - 750 volts in rack configuration and messengers and cables attached to poles
 - 1. Supply conductors of 0 - 750 volts in rack configuration [54.9](#)
 - 2. Supply cables and messengers attached to poles [57.4-F](#)
 - 3. Communication cables and messengers attached to poles [87.4-C3](#)
 - 4. On jointly used poles [92.1](#)
- (l) May be reduced for service drops and police and fire-alarm conductors, under special conditions
 - 1. Supply service drops and communication line conductors [54.8-C1b](#)
 - 2. Supply service drops on clearance arms [54.8-C2](#)
 - 3. Supply service drops on pole-top extensions [54.8-C3](#)
 - 4. Supply service drops and communication service drops [54.8-C4](#)
 - 5. Communication service drops and police, fire-alarm or supply line conductors [84.8-D1b](#)
 - 6. Communication service drops on clearance arms [84.8-D2](#)
 - 7. Communication service drops on pole-top extensions [84.8-D3](#)
 - 8. Communication service drops and supply service drops [84.8-D4](#)
 - 9. Police or fire-alarm conductors [92.2](#)
- (m) May be reduced for lead wires
 - 1. Supply lead wires above supply conductors [54.4-C6](#)
 - 2. Supply drip loops above communication conductors [92.1-F3](#)
- (n) May be reduced for supply conductors and private communication conductors of the same ownership [89.2-B](#)
- (o) May be reduced or shall be increased for triangular or vertical configuration or for pole-top construction
 - 1. Triangular or vertical configuration on crossarms [54.4-C1c](#)
 - 2. Deadended on pole in vertical configuration [54.4-C4](#)
- (p) May be reduced for supply service drops of 0 - 750 volts [54.8-C6](#)
- (q) Shall be increased between circuits where conductors are at pole top [54.4-D8](#)
- (r) May be reduced under special conditions
 - 1. Supply conductors of 750 - 7,500 volts [54.4-C1a](#)
 - 2. Supply conductors of 7,500 - 20,000 volts [54.4C1b](#)
- (s) Does not apply where conductors do not cross

1. Supply conductors of different phase or polarity [54.4-C2a](#)
 2. Communication conductors [84.4-C1a](#)
- (t) Shall not be applied consecutively both above and below the same supply conductors [54.4-C2a](#)
- (u) Shall be increased where conductors of different classification are supported on the same crossarm
1. Supply conductors of 0 - 750 volts and conductors of 7,500 - 22,500 volts [32.4-A2](#)
 2. Supply conductors of 0 - 750 volts and conductors of 750 - 7,500 volts [32.4-A3](#)
- (v) Not applicable to certain kinds of conductors
1. Supply conductors of same phase or polarity [54.4-C3c](#)
 2. Insulated supply conductors in multiple-conductor cables [57.4-C](#)
 3. Communication insulated conductors or multiple-conductor cables [87.4-C1](#)
- (w) Shall apply radially to conductors on brackets attached to crossarms
1. Supply conductors [54.4-C3b](#)
 2. Communication conductors [84.4-C1b](#)
- (x) Shall be increased between conductors of different classification supported on the same crossarm
1. Supply conductors of different voltage classification [32.4-A](#)
 2. Supply circuits of 0 - 750 volts and communication circuits [32.4-B](#)
 3. Supply circuits and private communications circuits [89.2-A](#)
- (y) Special clearances for unprotected supply conductors from one level to another level
[54.6-A](#)
[58.5-B3](#)
[92.1-F5](#)
- (z) Not applicable to the following:
1. Clearances between conductors at different levels specified in cases 8 to 13 inclusive...N/A
 2. Supply lateral conductors, suitably protected [54.6-C](#)
 3. Supply vertical runs, suitably protected [54.6-D](#)
 4. Supply risers, suitably protected [54.6-E](#)
 5. Communication conductor [87.4-C1](#)
- (aa) Not applicable between cables and their supporting messengers
1. Supply [57.4-D](#)
 2. Communication [87.4-F](#)
- (bb) May be reduced for guys and communication conductors supported on the same pole
1. Supply [56.4-C4](#)
 2. Communication [86.4-C](#)
- (cc) Clearance required between guys
1. Supply guys, crossing [56.4-D2](#)
 2. Supply guys, approximately parallel [56.4-D3](#)
 3. Communication guys, crossing [86.4-D2](#)
 4. Communication guys, approximately parallel [86.4-D3](#)
- (dd) Shall be increased where within 6 feet of a pole [103.5](#)
- (ee) May be decreased in partial underground distribution [54.4-C4c](#)
- (ff) Shall be increased by 0.40 inch per kV in excess of 75 kV
- (gg) Shall be increased by 0.40 inch per kV in excess of 150 kV
- (hh) Shall be increased by 0.40 inch per kV in excess of 300 kV
- (ii) Shall be increased by 0.25 inch per kV in excess of 150 kV
- (jj) Shall be increased by 0.25 inch per kV in excess of 300 kV
- (kk) Proposed clearances to be submitted to the CPUC prior to construction for circuits in excess of 550 kV
- (ll) 36-inch clearance applies 35 kV to 68 kV. 42-inch clearance applies over 68 kV.

- (mm) Vertical clearances shall be increased by 1/2 inch for each kV over 68 kV
- (nn) The vertical separation between supply conductors and service drops of 0 - 750 volts and supply conductors of 20,000 - 22,500 volts may be reduced to 48 inches
- (oo) May be reduced to 72 inches for conductors of 20,000 - 22,500 volts
- (pp) May be reduced to 36 inches vertically at midspan only when the supply conductors consist of abrasion resistant cable with a grounded metallic sheath or neutral-supported cable as specified in Rules [57](#) and [54.10](#) .
- (qq) Vertical clearances may be reduced between supply conductors of the same circuit at crossings in spans [54.4-C7](#)
- (rr) Can be less than 12" for strand mounted terminals, splice cases and other equipment located 8" or more from centerline of pole but not less than 1" with mutual agreement between affected owners.
- (ss) Requirements for transition of Fiber optic cable facilities [87.10](#)
- (tt) For Antennas utilized by utilities for the sole purpose of operating and monitoring their supply system see Rules [54.4-G](#) and [58.6](#).
- (uu) For clearances below supply and communication lines see Rules [94.4-A](#) and [94.4-B](#)
- (vv) Clearances for exposed associated cables may be reduced by 12 inches.
- (ww) May be reduced to 10 inches for cables installed by Antenna owner/operator.
- (xx) Clearance from service drop point of attachment on structure to Antenna(s) and associated supporting elements may be reduced to 10 inches.
- (yy) Up to 50 kV.
- (zz) In areas that are subjected to high winds, a utility may need to take extra measures to maintain all required separations. Measures may include but are not limited to, spacer bars and increased pin spacing

Note: [Revised February 7, 1964 by Decision No. 66707](#); [September 18, 1967 by Decision No. 72984](#); [March 30, 1968 by Decision No. 73813](#); [July 22, 1968 by Decision No. 74342](#); [September 11, 1974 by Decision No. 83420](#); [March 9, 1988 by Resolution E-3076](#); [November 6, 1992 by Resolution No. SU-15](#), [January 19, 1994 by Resolution SU-25](#); [October 9, 1996 by Resolution SU-40](#), [January 13, 2006 by Decision No. 05-01-030](#), [June 29, 2009 by Decision No. 08-10-017](#) and [August 20, 2009 by Decision No. 09-08-029](#).