480V, 3-PHASE COPPER WIRE

MAXIMUM LENGTH OF CONDUCTOR IN FT TO BE USED PER VA AND WIRE SIZE

kVA	CONDUCTOR SIZE						
	#12	#10	#8	#6	#4	#2	#1
2.7	511ft	814ft	1,267ft	2,007ft	3,199ft	5,079ft	6,399ft
5.4	255ft	407ft	633ft	1,003ft	1,600ft	2,540ft	3,199ft
8.1	170ft	271ft	422ft	669ft	1,066ft	1,693ft	2,133ft
10.8	128ft	204ft	317ft	502ft	800ft	1,270ft	1,600ft
13.5	102ft	163ft	253ft	401ft	640ft	1,016ft	1,280ft
16.2	85ft	136ft	211ft	334ft	533ft	847ft	1,066ft
18.9	-	116ft	181ft	287ft	457ft	726ft	914ft
21.6	-	102ft	158ft	251ft	400ft	635ft	800ft
24.3	-	90ft	141ft	223ft	355ft	564ft	711ft
27.0	-	-	127ft	201ft	320ft	508ft	640ft
29.7	-	-	115ft	182ft	291ft	462ft	582ft
32.4	-	-	106ft	167ft	267ft	423ft	533ft
35.1	-	-	-	154ft	246ft	391ft	492ft
37.8	-	-	-	143ft	229ft	363ft	457ft
40.5	-	-	-	134ft	213ft	339ft	427ft
43.2	-	-	-	125ft	200ft	317ft	400ft
45.9	-	-	-	118ft	188ft	299ft	376ft
48.6	-	-	-	-	178ft	282ft	355ft
51.3	-	-	-	-	168ft	267ft	337ft
54.0	-	-	-	-	160ft	254ft	320ft
56.7	-	-	-	-	152ft	242ft	305ft
59.4	-	-	-	-	-	231ft	291ft
62.1	-	-	-	-	-	221ft	278ft
64.8	-	-	-	-	-	212ft	267ft
67.5	-	-	-	-	-	203ft	256ft
70.2	-	-	-	-	-	195ft	246ft
72.9	-	-	-	-	-	188ft	237ft
75.6	-	-	-	-	-	181ft	229ft
78.3	-	-	-	-	-	175ft	221ft
81.0	-	-	-	-	-	-	213ft
83.7	-	-	-	-	-	-	206ft
86.4	-	-	-	-	-	-	200ft
89.1	-	-	-	-	-	-	194ft
91.8	-	-	-	-	-	-	-
94.5	-	-	-	-	-	-	-
97.2	-	-	-	-	-	-	-
99.9	-	-	-	-	-	-	-
102.6	-	-	-	-	-	-	-
105.3	-	-	-	-	-	-	-
108.0	-	-	-	-	-	-	-

BASED ON 2% VOLTAGE DROP ALLOWED FOR FEEDERS PER TITLE 24 2019.

VOLTAGE DROP = (CIRCUIT AMPS) X (TWICE THE LENGTH OF CONDUCTOR) X (WIRE RESISTANCE)

208V, 1-PHASE COPPER WIRE

MAXIMUM LENGTH OF CONDUCTOR IN FT TO BE USED PER VA AND WIRE SIZE

kVA	CONDUCTOR SIZE						
	#12	#10	#8	#6	#4	#2	#1
0.7	480ft	766ft	1,192ft	1,888ft	3,010ft	4,779ft	6,020ft
1.4	240ft	383ft	596ft	944ft	1,505ft	2,389ft	3,010ft
2.1	160ft	255ft	397ft	629ft	1,003ft	1,593ft	2,007ft
2.8	120ft	192ft	298ft	472ft	753ft	1,195ft	1,505ft
3.5	96ft	153ft	238ft	378ft	602ft	956ft	1,204ft
4.2	80ft	128ft	199ft	315ft	502ft	796ft	1,003ft
4.9	-	109ft	170ft	270ft	430ft	683ft	860ft
5.6	-	96ft	149ft	236ft	376ft	597ft	753ft
6.3	-	85ft	132ft	210ft	334ft	531ft	669ft
7.0	-	-	119ft	189ft	301ft	478ft	602ft
7.7	-	-	108ft	172ft	274ft	434ft	547ft
8.4	-	-	99ft	157ft	251ft	398ft	502ft
9.1	-	-	-	145ft	232ft	368ft	463ft
9.8	-	-	-	135ft	215ft	341ft	430ft
10.5	-	-	-	126ft	201ft	319ft	401ft
11.2	-	-	-	118ft	188ft	299ft	376ft
11.9	-	-	-	-	177ft	281ft	354ft
12.6	-	-	-	-	167ft	265ft	334ft
13.3	-	-	-	-	158ft	252ft	317ft
14.0	-	-	-	-	151ft	239ft	301ft
14.7	-	-	-	-	-	228ft	287ft
15.4	-	-	-	-	-	217ft	274ft
16.1	-	-	-	-	-	208ft	262ft
16.8	-	-	-	-	-	199ft	251ft
17.5	-	-	-	-	-	191ft	241ft
18.2	-	-	-	-	-	184ft	232ft
18.9	-	-	-	-	-	177ft	223ft
19.6	-	-	-	-	-	171ft	215ft
20.3	-	-	-	-	-	-	208ft
21.0	-	-	-	-	-	-	201ft
21.7	-	-	-	-	-	-	194ft
22.4	-	-	-	-	-	-	188ft
23.1	-	-	-	-	-	-	-
23.8	-	-	-	-	-	-	-
24.5	-	-	-	-	-	-	-
25.2	-	-	-	-	-	-	-
25.9	-	-	-	-	-	-	-
26.6	-	-	-	-	-	-	-
27.3	-	-	-	-	-	-	-
28.0	-	-	-	-	-	-	-

BASED ON 3% VOLTAGE DROP ALLOWED FOR BRANCH CIRCUITS PER TITLE 24 2019.

VOLTAGE DROP = (CIRCUIT AMPS) X (TWICE THE LENGTH OF CONDUCTOR) X (WIRE RESISTANCE)

120V, 1-PHASE COPPER WIRE

MAXIMUM LENGTH OF CONDUCTOR IN FT TO BE USED PER VA AND WIRE SIZE

kVA	CONDUCTOR SIZE						
	#12	#10	#8	#6	#4	#2	#1
0.4	280ft	446ft	694ft	1,100ft	1,753ft	2,784ft	3,506ft
0.8	140ft	223ft	347ft	550ft	877ft	1,392ft	1,753ft
1.2	93ft	149ft	231ft	367ft	584ft	928ft	1,169ft
1.6	70ft	112ft	174ft	275ft	438ft	696ft	877ft
2.0	56ft	89ft	139ft	220ft	351ft	557ft	701ft
2.4	47ft	74ft	116ft	183ft	292ft	464ft	584ft
2.8	-	64ft	99ft	157ft	250ft	398ft	501ft
3.2	-	56ft	87ft	137ft	219ft	348ft	438ft
3.6	-	50ft	77ft	122ft	195ft	309ft	390ft
4.0	-	-	69ft	110ft	175ft	278ft	351ft
4.4	-	-	63ft	100ft	159ft	253ft	319ft
4.8	-	-	58ft	92ft	146ft	232ft	292ft
5.2	-	-	-	85ft	135ft	214ft	270ft
5.6	-	-	-	79ft	125ft	199ft	250ft
6.0	-	-	-	73ft	117ft	186ft	234ft
6.4	-	-	-	69ft	110ft	174ft	219ft
6.8	-	-	-	-	103ft	164ft	206ft
7.2	-	-	-	-	97ft	155ft	195ft
7.6	-	-	-	-	92ft	147ft	185ft
8.0	-	-	-	-	88ft	139ft	175ft
8.4	-	-	-	-	83ft	133ft	167ft
8.8	-	-	-	-	-	127ft	159ft
9.2	-	-	-	-	-	121ft	152ft
9.6	-	-	-	-	-	116ft	146ft
10.0	-	-	-	-	-	111ft	140ft
10.4	-	-	-	-	-	107ft	135ft
10.8	-	-	-	-	-	103ft	130ft
11.2	-	-	-	-	-	99ft	125ft
11.6	-	-	-	-	-	-	121ft
12.0	-	-	-	-	-	-	117ft
12.4	-	-	-	-	-	-	113ft
12.8	-	-	-	-	-	-	110ft
13.2	-	-	-	-	-	-	106ft
13.6	-	-	-	-	-	-	-
14.0	-	-	-	-	-	-	-
14.4	-	-	-	-	-	-	-
14.8	-	-	-	-	-	-	-
15.2	-	-	-	-	-	-	-
15.6	-	-	-	-	-	-	-
16.0	-	-	-	-	-	-	-

BASED ON 3% VOLTAGE DROP ALLOWED FOR BRANCH CIRCUITS PER TITLE 24 2019.

VOLTAGE DROP = (CIRCUIT AMPS) X (TWICE THE LENGTH OF CONDUCTOR) X (WIRE RESISTANCE)

WIRING SCHEDULE - ALUMINUM CONDUCTORS (0-600V)

CIRCUIT RATING	CONDUIT SIZE (INCHES)							CONDUCTOR SIZE	
	NONE	G	N	NG	NGI	NNG	NNGI	PHASE/ NEUTRAL	GND* IG
100	1.25	1.25	1.25	1.5	2	2	2	1**	6
125	1.5	2	2	2	2	2	2.5	2/0	4
150	1.5	2	2	2	2.5	2.5	2.5	3/0	4
175	2	2	2	2.5	2.5	2.5	2.5	4/0	4
200	2	2.5	2.5	2.5	2.5	2.5	3	250	4
225	2	2.5	2.5	2.5	3	3	3	300	2
250	2.5	2.5	2.5	3	3	3	3	350	2
300	2.5	3	3	3.5	3.5	3.5	4	500	2
350	2@2	2@2	2@2	2@2.5	2@2.5	2@2.5	2@2.5	4/0	1
400	2@2	2@2.5	2@2.5	2@2.5	2@25	2@2.5	2@3	250	1
450	2@2	2@2.5	2@2.5	2@2.5	2@2.5	2@2.5	2@3	300	1/0
500	2@2.5	2@2.5	2@2.5	2@3	2@3	2@3	2@3	350	1/0
600	2@2.5	2@3	2@3	2@3.5	2@3.5	2@3.5	2@4	500	2/0
700	3@2.5	3@2.5	3@3	3@3	3@3	3@3	3@3	350	3/0
800	3@2.5	3@2.5	3@2.5	3@3	3@3	3@3	3@3.5	400	3/0
1000	4@2.5	4@2.5	4@2.5	4@3	4@3	4@3	4@3	350	4/0
1200	5@2.5	5@3	5@3	5@3.5	5@3.5	5@3.5	5@4	500	250
1600	6@2.5	6@2.5	6@2.5	6@3	6@3	6@3	6@3.5	400	4/0*
2000	7@2.5	7@3	7@3	7@3.5	7@3.5	7@3.5	7@4	500	250*
2500	9@2.5	9@3	9@3	9@3.5	9@3.5	9@3.5	9@4	500	350*
3000	10@2.5	10@3	10@3	10@3.5	10@3.5	10@3.5	10@4	500	400*

SUBSCRIPT KEY

SUBSCRIPT	CONDUCTORS PER CONDUIT
NONE	3 PHASE CONDUCTORS, CONDUIT GROUND
G	3 PHASE CONDUCTORS, 1 GROUNDING CONDUCTOR
N	3 PHASE CONDUCTORS, 1 NEUTRAL CONDUCTOR, CONDUIT GROUND
NG	3 PHASE CONDUCTORS, 1 NEUTRAL CONDUCTOR, 1 GROUNDING CONDUCTOR
NGI	3 PHASE CONDUCTORS, 1 NEUTRAL CONDUCTOR, 1 GROUNDING CONDUCTOR, 1 ISOLATED GROUNDING CONDUCTOR
NNG	3 PHASE CONDUCTORS, 2 NEUTRAL CONDUCTORS, 1 GROUNDING CONDUCTOR
NNGI	3 PHASE CONDUCTORS, 2 NEUTRAL CONDUCTORS, 1 GROUNDING CONDUCTOR, 1 ISOLATED GROUNDING CONDUCTOR

EXAMPLES

NOTES

1. ALUMINUM CONDUCTORS ARE PERMITTED FOR FEEDERS ONLY.
2. SCHEDULE IS BASED ON 3 CURRENT CARRYING CONDUCTORS IN RACEWAY, CABLE OR EARTH AT AMBIENT AIR TEMPERATURE OF 30°C (86°F).
3. CONDUIT SIZES ARE BASED ON COMPACT STRANDED XHHW-2 ALUMINUM CONDUCTORS IN RIGID STEEL OR EMT CONDUIT, MODIFY AS REQUIRED FOR OTHER APPLICATIONS.
4. ALUMINUM CONDUCTORS ARE NOT PERMITTED FOR CIRCUIT RATING LESS THAN 100A.
5. ALUMINUM CONDUCTORS ARE NOT PERMITTED FOR BRANCH CIRCUITS OR EQUIPMENT CONNECTIONS.
6. MODIFY IF USE OF 600 MCM OR LARGER CONDUCTORS IS DESIRED. CONFIRM LUG SIZES A'RE AVAILABLE.

* GROUNDING AND ISOLATED GROUNDING CONDUCTOR FOR CIRCUIT RATING 1600A AND HIGHER SHALL BE COPPER CONDUCTORS.

** PARALLEL CONDUCTORS ARE NOT PERMITTED UNDER 1/0. WHERE DOUBLE NEUTRAL CONDUCTORS ARE INDICATED, USE 250MCM NEUTRAL FOR 100A CIRCUIT RATING.

WIRING SCHEDULE - COPPER CONDUCTORS (0-600V)

CIRCUIT RATING	CONDUIT SIZE (INCHES)							CONDUCTOR SIZE	
	NONE	G	N	NG	NGI	NNG	NNGI	PHASE/ NEUTRAL	GND* IG
15	0.5	0.5	0.5	0.5	0.5	0.5	0.5	12	12
20	0.5	0.5	0.5	0.5	0.5	0.5	0.5	12	12
30	0.5	0.5	0.5	0.5	0.75	0.75	0.75	10	10
40	0.75	0.75	0.75	1	1	1	1	8	10
50	1	1	1	1.25	1.25	1.25	1.25	6	10
60	1	1.25	1.25	1.25	1.5	1.5	1.5	4	10
70	1	1.25	1.25	1.25	1.5	1.5	1.5	4	8
80	1.25	1.25	1.25	1.5	2	2	2	2	8
90	1.25	1.25	1.25	1.5	2	2	2	2	88

CIRCUITS 100A AND LARGER SHALL BE ALUMINUM.

SUBSCRIPT KEY

SUBSCRIPT	CONDUCTORS PER CONDUIT
NONE	3 PHASE CONDUCTORS, CONDUIT GROUND
G	3 PHASE CONDUCTORS, 1 GROUNDING CONDUCTOR
N	3 PHASE CONDUCTORS, 1 NEUTRAL CONDUCTOR, CONDUIT GROUND
NG	3 PHASE CONDUCTORS, 1 NEUTRAL CONDUCTOR, 1 GROUNDING CONDUCTOR
NGI	3 PHASE CONDUCTORS, 1 NEUTRAL CONDUCTOR, 1 GROUNDING CONDUCTOR, 1 ISOLATED GROUNDING CONDUCTOR
NNG	3 PHASE CONDUCTORS, 2 NEUTRAL CONDUCTORS*, 1 GROUNDING CONDUCTOR
NNGI	3 PHASE CONDUCTORS, 2 NEUTRAL CONDUCTORS*, 1 GROUNDING CONDUCTOR, 1 ISOLATED GROUNDING CONDUCTOR

* SINGLE NEUTRAL CONDUCTOR SIZES FOR CIRCUIT RATING 125 AND LESS

PARALLEL CONDUCTORS ARE NOT PERMITTED UNDER 1/0. WHERE DOUBLE NEUTRAL CONDUCTORS ARE INDICATED, PROVIDE AN OVERSIZED NEUTRAL CONDUCTOR IN ACCORDANCE WITH THE FOLLOWING TABLE:

CIRCUIT RATING	15	20	30	40	50	60
SINGLE NEUTRAL CONDUCOTR SIZE	10	8	4	2	1	1/0
CIRCUIT RATING	70	80	90	100	125	
SINGLE NEUTRAL CONDUCTOR SIZE	2/0	3/0	4/0	250	250	

EXAMPLES

NOTES

1. SCHEDULE IS BASED ON 3 CURRENT CARRYING CONDUCTORS IN RACEWAY, CABLE OR EARTH, AT AMBIENT AIR TEMPERATURE OF 30°C (86°F).
2. MODIFY IF USE OF 600MCM CONDUCTORS ARE DESIRED CONFIRM LUC SIZES ARE AVAILABLE.

TRANSFORMER SCHEDULE

KVA	FEEDER AMPACITY		SUPPLY SIDE & SYSTEM BONDING JUMPERS PER NEC TABLE 250.102(C)(1)	
	PRIMARY 480V 3 PHASE-3 WIRE	SECONDARY 120/208V 3 PHASE-4 WIRE	COPPER	ALUMINUM
3	15	15	#8	#6
6	15	20	#8	#6
9	15	30	#8	#6
15	25	50	#8	#6
30	50	100	#8	#6
45	70	150	#6	#4
75	110	250		#1/0
112 1/2	175	400		#4/0
150	225	500		#3/0
225	350	800		#4/0
300	450	1000		#4/0
500	800	1600		300 KCMIL
750	1200	2500		600 KCMIL
1000	1600	3500		750 KCMIL
1500	2500	5500		1250 KCMIL

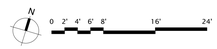
CIRCUITS 100A AND LARGER SHALL BE ALUMINUM

FEEDER KEY

TRANSFORMER IDENTIFICATION PREFIX	FEEDER CONFIGURATION	
	PRIMARY	SECONDARY
T	3 PHASE CONDUCTORS 1 GROUNDING CONDUCTOR (CIRCUIT SUBSCRIPT: G)	3 PHASE CONDUCTORS 1 NEUTRAL CONDUCTOR 1 SUPPLY SIDE BONDING JUMPER (CIRCUIT SUBSCRIPT: NG)
TK	3 PHASE CONDUCTORS 1 GROUNDING CONDUCTOR (CIRCUIT SUBSCRIPT: G)	3 PHASE CONDUCTORS 2 NEUTRAL CONDUCTORS 1 SUPPLY SIDE BONDING JUMPER (CIRCUIT SUBSCRIPT: NNG)
ET	3 PHASE CONDUCTORS 1 GROUNDING CONDUCTOR (CIRCUIT SUBSCRIPT: G)	3 PHASE CONDUCTORS 2 NEUTRAL CONDUCTORS 1 SUPPLY SIDE BONDING JUMPER 1 ISOLATED GROUNDING CONDUCTOR (CIRCUIT SUBSCRIPT: NNGI)

EXAMPLES

REFER KVA RATING TO TABLES ABOVE FOR FEEDER AND GROUNDING REQUIREMENTS



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5/17/2024

ELECTRICAL WIRING SCHEDULES

E6.02AB