

### NEC Table 310.80 {Detail 1 - One Circuit, 1-3/c in Single Duct}

Ambient Earth Temperature = 20 Deg C, Earth Thermal resistivity (RHO) = 90, Concrete Thermal resistivity (RHO) = 85,  
Load Factor = 100%, Aluminum Conductors.

1 Circuit, 1-3/c Aluminum Cable in Single Duct (Fig. B-310-60, Detail 1)																	
ALUMINUM							ALUMINUM										
Size (AWG or kcmil)	2001-5000 Volts Ampacity						5001-35,000 Volts Ampacity										
	90C (194F) Type	105C (221F) Type		90C (194F) Type	105C (221F) Type		90C (194F) Type	105C (221F) Type		90C (194F) Type	105C (221F) Type		90C (194F) Type	105C (221F) Type			
	MV-90	MV-105		MV-90	MV-105		MV-90	MV-105		MV-90	MV-105		MV-90	MV-105			
	NEC			AmpCalc			%Deviation			NEC			AmpCalc			%Deviation	
8	46	50		44.7	48.1		-2.8%	-3.8%		-	-		-	-		-	-
6	61	66		59.6	64.2		-2.3%	-2.7%		69	74		67.9	73.2		-1.6%	-1.1%
4	80	86		77.8	83.8		-2.8%	-2.6%		89	96		87.9	94.7		-1.2%	-1.4%
2	105	110		101.4	109.2		-3.4%	-0.7%		115	125		116.5	125.6		1.3%	0.5%
1	120	130		118.0	127.1		-1.7%	-2.2%		135	145		132.9	143.3		-1.6%	-1.2%
1/0	140	150		135.2	145.5		-3.4%	-3.0%		150	165		151.2	163.0		0.8%	-1.2%
2/0	160	170		154.8	166.7		-3.2%	-1.9%		170	185		171.1	184.5		0.6%	-0.3%
3/0	180	195		177.4	191.0		-1.4%	-2.1%		195	210		194.5	209.7		-0.3%	-0.1%
4/0	205	220		203.2	218.9		-0.9%	-0.5%		220	240		221.1	238.6		0.5%	-0.6%
250	230	245		225.1	242.4		-2.1%	-1.1%		245	265		242.6	261.7		-1.0%	-1.2%
350	280	310		274.1	295.3		-2.1%	-4.7%		295	315		292.0	315.1		-1.0%	0.0%
500	340	365		335.0	361.0		-1.5%	-1.1%		355	385		354.9	383.3		0.0%	-0.4%
750	429	460		416.6	449.3		-2.9%	-2.3%		440	475		439.0	474.7		-0.2%	-0.1%
1000	495	535		487.6	526.5		-1.5%	-1.6%		510	545		506.2	548.1		-0.7%	0.6%
							Average Deviation =	-2.3%	-2.2%								
							Average Deviation =	-0.3%	-0.5%								

**AmpCalc References:**

AmpCalc Library = IEERUB\_3, Duct library = NEC\_PVC, 5" duct.  
AmpCalc Volume = IEERUB1  
1 kV non-shielded

AmpCalc Library = IEERUB\_3, Duct library = NEC\_PVC, 5" duct.  
AmpCalc Volume = IEERUB8 for #6, 4, IEERUB15 for all others  
8 or 15 kV shielded with both ends grounded

NEC ampacities obtained from "NFPA 70, National Electric Code, 2002 Edition", © 2002, National Fire Protection Association, Inc.  
Remainder of table, © 2002, CalcWare, All Rights Reserved.

### NEC Table 310.80 {Detail 2 - Three Circuits, 1-3/c in Each Duct}

Ambient Earth Temperature = 20 Deg C, Earth Thermal resistivity (RHO) = 90, Concrete Thermal resistivity (RHO) = 85,  
Load Factor = 100%, Aluminum Conductors.

3 Circuits, 1-3/c Aluminum Cable in each Duct (Fig. B-310-60, Detail 2)																	
ALUMINUM							ALUMINUM										
Size (AWG or kcmil)	2001-5000 Volts Ampacity						5001-35,000 Volts Ampacity										
	90C (194F) Type MV-90	105C (221F) Type MV-105		90C (194F) Type MV-90	105C (221F) Type MV-105		90C (194F) Type MV-90	105C (221F) Type MV-105		90C (194F) Type MV-90	105C (221F) Type MV-105		90C (194F) Type MV-90	105C (221F) Type MV-105			
	NEC			AmpCalc			%Deviation			NEC			AmpCalc			%Deviation	
	8	41	44		40.0	43.1		-2.4%	-2.0%		-	-		-	-		-
6	54	58		52.7	56.8		-2.4%	-2.1%		59	64		58.2	62.7		-1.4%	-2.0%
4	70	75		68.3	73.6		-2.4%	-1.9%		75	81		74.7	80.5		-0.4%	-0.6%
2	90	97		88.4	95.2		-1.8%	-1.9%		100	105		97.3	105.0		-2.7%	0.0%
1	105	110		102.0	109.8		-2.9%	-0.2%		110	120		110.5	119.2		0.5%	-0.7%
1/0	120	125		116.2	125.1		-3.2%	0.1%		125	135		125.1	135.0		0.1%	0.0%
2/0	135	145		132.4	142.6		-1.9%	-1.7%		140	155		141.1	152.3		0.8%	-1.7%
3/0	155	165		150.8	162.5		-2.7%	-1.5%		160	175		159.7	172.3		-0.2%	-1.5%
4/0	175	185		171.8	185.1		-1.8%	0.1%		180	195		180.6	195.0		0.3%	0.0%
250	190	205		189.3	203.8		-0.4%	-0.6%		200	215		197.4	213.1		-1.3%	-0.9%
350	230	250		228.4	246.0		-0.7%	-1.6%		240	255		235.6	254.6		-1.8%	-0.2%
500	280	300		276.8	298.3		-1.1%	-0.6%		285	305		283.7	306.8		-0.5%	0.6%
750	345	375		341.3	368.2		-1.1%	-1.8%		350	375		346.9	375.7		-0.9%	0.2%
1000	400	430		395.7	427.2		-1.1%	-0.7%		400	430		396.6	430.2		-0.8%	0.0%
							Average Deviation =	-1.8%	-1.2%								
							Average Deviation =	-0.6%	-0.5%								

**AmpCalc References:**

AmpCalc Library = IEERUB\_3, Duct library = NEC\_PVC, 5" duct.  
AmpCalc Volume = IEERUB1  
1 kV non-shielded

AmpCalc Library = IEERUB\_3, Duct library = NEC\_PVC, 5" duct.  
AmpCalc Volume = IEERUB8 for #6, 4 , IEERUB15 for all others  
8 or 15 kV shielded with both ends grounded

NEC ampacities obtained from "NFPA 70, National Electric Code, 2002 Edition", © 2002, National Fire Protection Association, Inc.  
Remainder of table, © 2002, CalcWare, All Rights Reserved.

### NEC Table 310.80 {Detail 3 - Six Circuits, 1-3/c in Each Duct}

Ambient Earth Temperature = 20 Deg C, Earth Thermal resistivity (RHO) = 90, Concrete Thermal resistivity (RHO) = 85,  
Load Factor = 100%, Aluminum Conductors.

6 Circuits, 1-3/c Aluminum Cable in each Duct (Fig. B-310-60, Detail 3)																	
ALUMINUM							ALUMINUM										
Size (AWG or kcmil)	2001-5000 Volts Ampacity						5001-35,000 Volts Ampacity										
	90C (194F) Type	105C (221F) Type		90C (194F) Type	105C (221F) Type		90C (194F) Type	105C (221F) Type		90C (194F) Type	105C (221F) Type		90C (194F) Type				
	MV-90	MV-105		MV-90	MV-105		MV-90	MV-105		MV-90	MV-105		MV-90	MV-105			
	NEC			AmpCalc			%Deviation			NEC			AmpCalc			%Deviation	
8	36	39		35.0	37.7		-2.8%	-3.3%		-	-		-	-		-	-
6	46	50		45.7	49.2		-0.7%	-1.6%		49	53		49.0	52.8		0.0%	-0.4%
4	60	65		58.8	63.3		-2.0%	-2.6%		63	68		62.5	67.4		-0.8%	-0.9%
2	77	83		75.5	81.3		-1.9%	-2.0%		80	86		80.2	86.6		0.3%	0.7%
1	87	94		86.5	93.1		-0.6%	-1.0%		90	98		90.7	97.9		0.8%	-0.1%
1/0	99	105		98.1	105.7		-0.9%	0.7%		105	110		102.3	110.5		-2.6%	0.5%
2/0	110	120		111.3	119.9		1.2%	-0.1%		115	125		115.1	124.4		0.1%	-0.5%
3/0	130	140		126.3	136.0		-2.8%	-2.9%		130	140		129.7	140.2		-0.2%	0.1%
4/0	145	155		143.2	154.2		-1.2%	-0.5%		150	160		146.2	158.1		-2.5%	-1.2%
250	160	170		157.0	169.1		-1.9%	-0.5%		160	170		159.3	172.3		-0.4%	1.4%
350	190	205		188.2	202.7		-0.9%	-1.1%		190	205		189.0	204.6		-0.5%	-0.2%
500	230	245		226.7	244.3		-1.4%	-0.3%		230	245		226.0	244.8		-1.7%	-0.1%
750	280	305		278.0	299.9		-0.7%	-1.7%		275	295		274.0	297.4		-0.4%	0.8%
1000	320	345		320.2	345.7		0.1%	0.2%		315	335		311.4	338.6		-1.1%	1.1%
				Average Deviation =			-1.2%	-1.2%					Average Deviation =			-0.7%	0.1%

**AmpCalc References:**

AmpCalc Library = IEERUB\_3, Duct library = NEC\_PVC, 5" duct.  
AmpCalc Volume = IEERUB1  
1 kV non-shielded

AmpCalc Library = IEERUB\_3, Duct library = NEC\_PVC, 5" duct.  
AmpCalc Volume = IEERUB8 for #6, 4, IEERUB15 for all others  
8 or 15 kV shielded with both ends grounded

NEC ampacities obtained from "NFPA 70, National Electric Code, 2002 Edition", © 2002, National Fire Protection Association, Inc.  
Remainder of table, © 2002, CalcWare, All Rights Reserved.