

### NEC Table 310.77 {Detail 1 - One Circuit, 3-1/c in Single Duct}

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

1 Circuit, 3-1/c Copper Cables in Single Duct (Fig. B-310-60, Detail 1)													
COPPER						COPPER							
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	90C (194F) Type MV-90	105C (221F) Type MV-105	
	NEC		AmpCalc		%Deviation		NEC		AmpCalc		%Deviation		
8	64	69	64.1	69.1	0.2%	0.1%	-	-	-	-	-	-	
6	85	92	84.5	91.1	-0.6%	-1.0%	90	97	90.0	97.0	0.0%	0.0%	
4	110	120	110.2	118.7	0.2%	-1.1%	115	125	116.5	125.5	1.3%	0.4%	
2	145	155	145.3	156.6	0.2%	1.0%	155	165	154.3	166.4	-0.5%	0.8%	
1	170	180	167.6	180.6	-1.4%	0.3%	175	185	175.7	189.5	0.4%	2.4%	
1/0	195	210	191.7	206.5	-1.7%	-1.7%	200	215	199.8	215.6	-0.1%	0.3%	
2/0	220	235	219.2	236.2	-0.4%	0.5%	230	245	227.2	245.1	-1.2%	0.0%	
3/0	250	270	250.7	270.1	0.3%	0.0%	260	275	258.6	279.1	-0.5%	1.5%	
4/0	290	310	288.1	310.4	-0.7%	0.1%	295	315	293.9	317.3	-0.4%	0.7%	
250	320	345	318.1	342.8	-0.6%	-0.6%	325	345	322.0	347.7	-0.9%	0.8%	
350	385	415	385.0	415.2	0.0%	0.0%	390	415	386.2	417.2	-1.0%	0.5%	
500	470	505	468.7	505.8	-0.3%	0.2%	465	500	465.1	503.0	0.0%	0.6%	
750	585	630	581.1	628.3	-0.7%	-0.3%	565	610	566.4	613.9	0.2%	0.6%	
1000	670	720	664.5	719.9	-0.8%	0.0%	640	690	641.0	696.2	0.2%	0.9%	
Average Deviation =					-0.4%	-0.2%	Average Deviation =					-0.2%	0.7%

**AmpCalc References:**

AmpCalc Library = IEERUB\_2, Duct library = NEC\_PVC, 5" duct.  
AmpCalc Volume = IEERUB1  
1 kV non-shielded

AmpCalc Library = IEERUB\_2, 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

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### NEC Table 310.77 {Detail 2 - Three Circuits, 3-1/c in Each Duct}

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

3 Circuits, 3-1/c Copper Cables in each Duct (Fig. B-310-60, Detail 2)																								
COPPER						COPPER																		
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													
	MV-90	MV-105		MV-90	MV-105		MV-90	MV-105		MV-90	MV-105													
	NEC			AmpCalc			%Deviation			NEC			AmpCalc			%Deviation								
8	56	60		56.1	60.4		0.2%	0.7%		-	-		-	-		-	-							
6	73	79		73.1	78.8		0.1%	-0.3%		77	83		76.4	82.4		-0.8%	-0.7%							
4	95	100		94.5	101.8		-0.5%	1.8%		99	105		98.2	105.8		-0.8%	0.8%							
2	125	130		123.1	132.6		-1.5%	2.0%		130	135		127.7	137.8		-1.8%	2.1%							
1	140	150		140.9	151.8		0.6%	1.2%		145	155		144.7	156.1		-0.2%	0.7%							
1/0	160	175		160.3	172.7		0.2%	-1.3%		165	175		163.8	176.8		-0.7%	1.0%							
2/0	185	195		182.2	196.3		-1.5%	0.7%		185	200		185.2	200.0		0.1%	0.0%							
3/0	210	225		207.1	223.2		-1.4%	-0.8%		210	225		209.7	226.4		-0.1%	0.6%							
4/0	235	255		236.1	254.5		0.5%	-0.2%		240	255		236.9	256.0		-1.3%	0.4%							
250	260	280		259.3	279.4		-0.3%	-0.2%		260	280		258.5	279.3		-0.6%	-0.2%							
350	315	335		310.8	335.2		-1.3%	0.1%		310	330		307.2	332.2		-0.9%	0.7%							
500	375	405		374.3	404.0		-0.2%	-0.2%		370	395		366.3	396.6		-1.0%	0.4%							
750	460	495		457.8	495.0		-0.5%	0.0%		440	475		440.4	478.0		0.1%	0.6%							
1000	525	565		518.9	562.1		-1.2%	-0.5%		495	535		493.7	537.2		-0.3%	0.4%							
Average Deviation =							-0.5%	0.2%								Average Deviation =							-0.6%	0.5%

**AmpCalc References:**

AmpCalc Library = IEERUB\_2, Duct library = NEC\_PVC, 5" duct.  
AmpCalc Volume = IEERUB1  
1 kV non-shielded

AmpCalc Library = IEERUB\_2, 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

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### NEC Table 310.77 {Detail 3 - Six Circuits, 3-1/c in Each Duct}

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

6 Circuits, 3-1/c Copper Cables in each Duct (Fig. B-310-60, Detail 3)																	
COPPER						COPPER											
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						
	NEC			AmpCalc			%Deviation			NEC			AmpCalc			%Deviation	
	8	48	52		48.0	51.7		0.0%	-0.6%		-	-		-	-		-
6	62	67		62.0	66.8		0.0%	-0.3%		64	68		63.9	68.9		-0.2%	1.3%
4	80	86		79.6	85.8		-0.5%	-0.2%		82	88		81.6	88.0		-0.5%	0.0%
2	105	110		102.7	110.7		-2.2%	0.6%		105	115		104.5	112.8		-0.5%	-1.9%
1	115	125		116.9	125.9		1.7%	0.7%		120	125		117.9	127.4		-1.8%	1.9%
1/0	135	145		132.4	142.7		-1.9%	-1.6%		135	145		133.0	143.7		-1.5%	-0.9%
2/0	150	160		149.9	161.5		-0.1%	0.9%		150	165		149.9	162.0		-0.1%	-1.8%
3/0	170	185		169.7	182.8		-0.2%	-1.2%		170	185		168.9	182.6		-0.6%	-1.3%
4/0	195	210		192.4	207.3		-1.3%	-1.3%		190	205		190.1	205.6		0.1%	0.3%
250	210	225		210.4	226.8		0.2%	0.8%		210	225		206.7	223.7		-1.6%	-0.6%
350	250	270		250.7	270.3		0.3%	0.1%		245	265		244.2	264.5		-0.3%	-0.2%
500	300	325		299.8	323.6		-0.1%	-0.4%		290	310		289.0	313.6		-0.3%	1.2%
750	365	395		363.6	393.1		-0.4%	-0.5%		350	375		344.4	374.7		-1.6%	-0.1%
1000	410	445		409.9	444.1		0.0%	-0.2%		390	415		383.7	418.5		-1.6%	0.8%
Average Deviation =							-0.3%	-0.2%	Average Deviation =							-0.8%	-0.1%

**AmpCalc References:**

AmpCalc Library = IEERUB\_2, Duct library = NEC\_PVC, 5" duct.  
AmpCalc Volume = IEERUB1  
1 kV non-shielded

AmpCalc Library = IEERUB\_2, 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

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