

### FPN Figure B.310.5 {One Circuit, 1-1/c in Each of Fifteen Ducts, Five Conductors per Phase}

0-5000 Volt Cable, Ambient Earth Temperature = 20 Deg C, Earth Thermal resistivity = 60, 90 or 120,  
 Concrete Thermal resistivity (RHO) = Earth RHO minus 5, PVC Duct RHO = 650, Duct Diameter 3",  
 Cable Insulation RHO = 500, Cable Jacket RHO = 650, Load Factor = 50% or 100%, Conductor Temperature = 75C (167F).

Size (AWG or kcmil)	Types RHW, THHW, THW, THWN, XHHW, USE OR MV-90									Size (AWG or kcmil)
	COPPER									
	Total per Phase Ampere Rating									
	NEC			AmpCalc			% Deviation			
	RHO EARTH 60 LF 50	RHO EARTH 90 LF 100	RHO EARTH 120 LF 100	RHO EARTH 60 LF 50	RHO EARTH 90 LF 100	RHO EARTH 120 LF 100	RHO EARTH 60, LF 50	RHO EARTH 90, LF 100	RHO EARTH 120, LF 100	
2000	5575 (1115A/Cable)	3375 (675A/Cable)	3000 (600A/Cable)	5204.0 (1040.8A/Cable)	3386.0 (677.2A/Cable)	3013.0 (602.6A/Cable)	-6.7%	0.3%	0.4%	2000
Average Deviation =							-6.7%	0.3%	0.4%	

*\*See comments on following page on results for Earth RHO = 60 and LF = 50.*

**AmpCalc References:**

AmpCalc Library = IEERUB\_1, AmpCalc Volume = IEERUB8 except 110 mil jacket added with RHO = 650,  
 5 kV Shielded w/ one end grounded, Duct library = NEC\_PVC, 3" duct.

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.

AmpCalc calculates ampacities 6.7% lower than listed in the NEC table for Earth RHO=60 and Load Factor (LF) = 50%. Note the following ampacity ratios from the NEC, AmpCalc and the S-135 Standard show close agreement between AmpCalc and S-135, with the higher factors for the NEC indicating that the RHO=60 and LF=100% NEC ampacity values are high.

**Ratio of Ampacities at RHO=60 & LF=50% TO  
Ampacities at RHO=90 & LF=100%**

<b>Size</b>	<b>NEC</b>	<b>AmpCalc</b>	<b>S-135</b>
2000	1.652	1.537	1.505