ELECON
ELECTROCONDUCTORES, C.A.
Div. Ingeniería de Cables

TemperaturE CORRECTION FACTORS for RESISTANCE OF COPPER AND ALUMINUM conductors

*Copper Conductors**		
Temperature, Degrees C	**Multiplying Factors for Reduction to:**	
	20ºC	**25ºC**
0	1.085	1.107
5	1.063	1.084
10	1.041	1.061
15	1.020	1.040
20	1.000	1.020
25	0.981	1.000
30	0.962	0.981
35	0.944	0.963
40	0.927	0.945
45	0.911	0.928
50	0.895	0.912
55	0.879	0.896
60	0.864	0.881
65	0.850	0.866
70	0.836	0.852
75	0.822	0.838
80	0.809	0.825
85	0.797	0.812
90	0.784	0.800

The correction factors given in this table are satisfactory for most applications. They are based upon copper having 100 percent conductivity and are derived from the formulae:

$$R_1 = R_2 \frac{254.5}{234.5 + T_2} \qquad R_3 = R_2 \frac{259.5}{234.5 + T_2}$$

Where R_1= Resistance at 20ºC
R_2= Measured resistance at test temperature, T_2
R_3= Resistance at 25ºC

*Aluminum Conductors**		
Temperature, Degrees C	**Multiplying Factors for Reduction to:**	
	20ºC	**25ºC**
0	1.088	1.110
5	1.064	1.085
10	1.042	1.063
15	1.020	1.041
20	1.000	1.020
25	0.980	1.000
30	0.961	0.981
35	0.943	0.962
40	0.925	0.944
45	0.908	0.927
50	0.892	0.910
55	0.876	0.894
60	0.861	0.878
65	0.846	0.863
70	0.832	0.849
75	0.818	0.835
80	0.805	0.821
85	0.792	0.808
90	0.780	0.796

The correction factors given in this table are satisfactory for most applications. They are based upon copper having 61 percent conductivity and are derived from the formulae:

$$R_1 = R_2 \frac{248}{228 + T_2} \qquad R_3 = R_2 \frac{253}{228 + T_2}$$

Where R_1= Resistance at 20ºC
R_2= Measured resistance at test temperature, T_2
R_3= Resistance at 25ºC

**** IPCEA PUBLICATION S-66-524, NEMA WC 7-1971***