SDA appendix

Tables

Search the first column for the value that is equal to, or the next lowest to the searched value.
If reversed, the next highest value is selected. Select the returned value in the selected column.

When NEC tables show a range of values, the lower one is used in the following tables. When using the the method above, the correct NEC range is selected.

Table 1

NEC TABLE 310.15(B)(3)(c)

Ambient Temperature Adjustment for Circular Raceways Exposed to Sunlight on or Above Rooftops

Distance Above Roof to Bottom of Conduit (in)	Temperature Adder (C)	Temperature Adder (F)
0'	33	60
0.5'	22	40
3.5'	17	30
12'	14	25
36'	0	0

```
// Table 1
// NEC TABLE 310.15(B)(3)(c)
// Ambient Temperature Adjustment for Circular Raceways Exposed to Sunlight on or Above Rooftops
// Distance Above Roof to Bottom of Conduit (in) | Temperature Adder (ºC)
1: {
  '0': ['33'],
  '0.5': ['22'],
  '3.5': ['17'],
  '12': ['14'],
  '36': ['0'],
},
```

Table 2

NEC TABLE 310.15(B)(2)(a)

Ambient Temperature Correction Factors Based on 30 C

Ambient Temp (C)	90°C
0	1.15
11	1.12
16	1.08
21	1.04
26	1
31	0.96
36	0.91
41	0.87
46	0.82
51	0.76
56	0.71
61	0.65
66	0.58
71	0.5
76	0.41
81	0.29

```
// Table 2
// NEC TABLE 310.15(B)(2)(a)
// Ambient Temperature Correction Factors Based on 30 C
// Ambient Temp (C) | 90°C
2: {
  '0': ['1.15'],
  '11': ['1.12'],
  '16': ['1.08'],
  '21': ['1.04'],
  '26': ['1'],
  '31': ['0.96'],
  '36': ['0.91'],
  '41': ['0.87'],
  '46': ['0.82'],
  '51': ['0.76'],
  '56': ['0.71'],
  '61': ['0.65'],
  '66': ['0.58'],
  '71': ['0.5'],
  '76': ['0.41'],
  '81': ['0.29'],
},
```

Table 3

NEC TABLE 310.15(B)(3)(a)

Adjustment Factors for More Than Three Current-Carrying Conductors in a Raceway or Cable

No. of Conductors	Adjustment Factor
0	1
4	0.8
7	0.7
10	0.5
21	0.45
31	0.4
41	0.35

```
// Table 3
// NEC TABLE 310.15(B)(3)(a)
// Adjustment Factors for More Than Three Current-Carrying Conductors in a Raceway or Cable
// No. of Conductors | Adjustment Factor
3: {
  '0': ['1'],
  '4': ['0.8'],
  '7': ['0.7'],
  '10': ['0.5'],
  '21': ['0.45'],
  '31': ['0.4'],
  '41': ['0.35'],
},
```

Table 4

TABLE 310.15(B)(16)

Allowable Ampacities of Single Insulated Conductors, Not More Than Three Current-Carrying Conductors is Raceway, Cable or Direct Burial, Based on Temperature of 30 C

Allowable Ampacities for THWN-2 90 C	Conductor Size (AWG or kcmil)
14	18
18	16
25	14
30	12
40	10
55	8
75	6
95	4
115	3
130	2
145	1
170	1/0
195	2/0
225	3/0
260	4/0

```
// Table 4
// TABLE 310.15(B)(16)
// Allowable Ampacities of Single Insulated Conductors, Not More Than Three Current-Carrying Conductors is Raceway, Cable or
Direct Burial, Based on Temperature of 30 C
// THWN-2 90 C | Size (AWG or kcmil)
4: {
  '14': ['18'],
  '18': ['16'],
  '25': ['14'],
  '30': ['12'],
  '40': ['10'],
  '55': ['8'],
  '75': ['6'],
  '95': ['4'],
  '115': ['3'],
  '130': ['2'],
  '145': ['1'],
  '170': ['1/0'],
  '195': ['2/0'],
  '225': ['3/0'],
  '260': ['4/0'],
},
```

Table 5

This is the same as Table 4, but with reversed column order.

TABLE 310.15(B)(16)

Allowable Ampacities of Single Insulated Conductors, Not More Than Three Current-Carrying Conductors is Raceway, Cable or Direct Burial, Based on Temperature of 30 C

THWN-2 90 C	Size (AWG or kcmil)
18	14
16	18
14	25
12	30
10	40
8	55
6	75
4	95
3	115
2	130
1	145

1/0	170
2/0	195
3/0	225
4/0	260

```
// Table 5
// TABLE 310.15(B)(16)
// Allowable Ampacities of Single Insulated Conductors, Not More Than Three Current-Carrying Conductors is Raceway, Cable or
Direct Burial, Based on Temperature of 30 C
// THWN-2 90 C | Size (AWG or kcmil)
5: {
  '18': ['14'],
  '16': ['18'],
  '14': ['25'],
  '12': ['30'],
  '10': ['40'],
  '8': ['55'],
  '6': ['75'],
  '4': ['95'],
  '3': ['115'],
  '2': ['130'],
  '1': ['145'],
  '1/0': ['170'],
  '2/0': ['195'],
  '3/0': ['225'],
  '4/0': ['260'],
},
```

Table 6

NEC Chapter 9 Table 8

Conductor Properties

Condcutor Size (AWG)	Stranding	Overall Diameter
18	7	0.046
16	7	0.058
14	7	0.073
12	7	0.092
10	7	0.116
8	7	0.146
6	7	0.184
4	7	0.232
3	7	0.260
2	7	0.292
1	19	0.332
1/0	19	0.372
2/0	19	0.418
3/0	19	0.470
4/0	19	0.528

```
// Table 6
// NEC (chapter 9?) Table 8
// Conductor Properties
// Size (AWG or kCmil) | Stranding | Diameter
6: {
  '18': ['7', '0.046'],
  '16': ['7', '0.058'],
  '14': ['7', '0.073'],
  '12': ['7', '0.092'],
  '10': ['7', '0.116'],
  '8': ['7', '0.146'],
  '6': ['7', '0.184'],
  '4': ['7', '0.232'],
  '3': ['7', '0.260'],
  '2': ['7', '0.292'],
  '1': ['19', '0.332'],
  '1/0': ['19', '0.372'],
  '2/0': ['19', '0.418'],
  '3/0': ['19', '0.470'],
  '4/0': ['19', '0.528'],
},
```

Table 7

Article 352

Rigid PVC Conduit (PVC), Schedule 80

40% Fill Area - Over 2 Wires (in2)	PVC Sch 80 Trade Size
0.087	1/2
0.164	3/4
0.275	1
0.495	1-1/4
0.684	1-1/2
1.15	2
1.647	2-1/2
2.577	3
3.475	3-1/2
4.503	4

```
// Table 7
// Article 352
// Rigid PVC Conduit (PVC), Schedule 80
// "40% Fill Area - Over 2 Wires (in2)" | PVC Sch 80 Trade Size
7: {
  '0.087': ['1/2'],
  '0.164': ['3/4'],
  '0.275': ['1'],
  '0.495': ['1-1/4'],
  '0.684': ['1-1/2'],
  '1.15': ['2'],
  '1.647': ['2-1/2'],
  '2.577': ['3'],
  '3.475': ['3-1/2'],
  '4.503': ['4'],
},
```

Table 8

Article 358

Electrical Metallic Tubing (EMT)

40% Fill Area - Over 2 Wires (in2)	Trade Size
0.213	3/4
0.346	1
0.598	1-1/4
0.814	1-1/2
1.342	2
2.343	2-1/2
3.538	3
4.618	3-1/2
5.901	4

```
// Table 8
// Article 358
// Electrical Metallic Tubing (EMT)
// EMT | Trade Size
8: {
  //'0.122': ['1/2'],
  '0.213': ['3/4'],
  '0.346': ['1'],
  '0.598': ['1-1/4'],
  '0.814': ['1-1/2'],
  '1.342': ['2'],
  '2.343': ['2-1/2'],
  '3.538': ['3'],
  '4.618': ['3-1/2'],
  '5.901': ['4'],
},
```

Table 9

240.6 Standard OCPD Ampere Ratings

OCPD (A)
15
20
25
30
35
40
45
50
60
70
80
90
100
110
125
150
175
200
250
300
350
450
500
600
700

```
//Table 9
//240.6 Standard OCPD Ampere Ratings
9: {
  '15': ['15'],
  '20': ['20'],
  '25': ['25'],
  '30': ['30'],
  '35': ['35'],
  '40': ['40'],
  '45': ['45'],
  '50': ['50'],
  '60': ['60'],
  '70': ['70'],
  '80': ['80'],
  '90': ['90'],
  '100': ['100'],
  '110': ['110'],
  '125': ['125'],
  '150': ['150'],
  '175': ['175'],
  '200': ['200'],
  '250': ['250'],
  '300': ['300'],
  '350': ['350'],
  '450': ['450'],
  '500': ['500'],
  '600': ['600'],
  '700': ['700'],
},
```

Table 10

Table 690.7 Voltage Correction Factors

Lowest-Expected Ambient Temperature

°C	°F	Temperature Correction Factor

0 to 4	32 to 40	1.10
-1 to -5	23 to 31	1.12
-6 to -10	14 to 22	1.14
-11 to -15	5 to 13	1.16
-16 to -20	4 to -4	1.18
-21 to -25	-5 to -13	1.20
-26 to -30	-14 to -22	1.21
-31 to -35	-23 to -31	1.23
-36 to -40	-32 to -40	1.25