Outdoor Temperatures

for Selected U.S. and Canadian Cities and Temperatures Inside Raceways on Rooftops Exposed to Direct Sunlight

Copper Development Association

Introduction

The National Electrical Code Section 310.15(A)(3), and good design practice, requires adjustment of ampacity of wires and cables installed in ambient temperature conditions that are higher than those upon which the listed ampacities of Table 310.15(B)(16) are based. Ambient temperature is understood to mean the temperature of the air surrounding the conductor. For conductors in raceway, the ambient to which the insulated conductor is subjected is the temperature of the air inside the raceway.

Ambient temperatures within raceways above rooftops will vary with height, in accordance with Table 310.15(B)(3)(c). After determination of the resultant ambient temperature within the raceway, Table 310.15(B)(2)(a) should be applied.

To help determine the temperature insulation will be subjected to—under unloaded conditions—CDA has compiled a table of average outdoor temperatures for various U.S. and selected Canadian cities, as well as temperatures inside raceway on and at various heights above rooftops in accordance with Table 315(B)(3)(c).

For each city, the table contains:

- An average of the 2% ASHRAE design temperatures for each location for June through August*
- Likely resultant temperatures inside rooftop raceway (unloaded) exposed to direct sunlight in accordance with Table 315(B)(3)(c):
  - On the roof, and up to ½ inch above roof
  - Greater than ½ inch and up to 3½ inches above roof
  - Greater than 3½ inches and up to 12 inches above roof
  - Greater than 12 inches and up to 36 inches above roof
- ASHRAE's reported "extreme annual design condition"—i.e., the maximum dry-bulb temperature reading for the location expected within a 50 year period.

(footnotes on inside back cover)

The following table indicates the 2% design temperature (averaged for June-August) for various cities and the various temperatures inside raceway on rooftops exposed to direct sunlight.

The first column represents the ASHRAE 2% design temperature averaged for June - August.[1] The second through fifth column is the resultant ambient temperature inside the raceway unloaded at specified heights above the roof.[2] The right-hand column is the maximum dry-bulb design temperature for that city, based on 50 years distribution of weather data.

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
AL	**Alabama**						
AL	ANNISTON METROPOLITAN AP	94	154	134	124	119	105
AL	AUBURN-OPELIKA APT	92	152	132	122	117	104
AL	BIRMINGHAM	94	154	134	124	119	106
AL	CAIRNS FIELD FORT RUCKER CENTREVILLE WSMO	95	155	135	125	120	105
AL	DAUPHIN ISLAND	87	147	127	117	112	96
AL	DOTHAN MUNICIPAL AP	95	155	135	125	120	105
AL	GADSEN MUNI (AWOS) HUNTSVILLE	93	153	133	123	118	106
AL	HUNTSVILLE	94	154	134	124	119	106
AL	MAXWELL AFB	97	157	137	127	122	105
AL	MOBILE	93	153	133	123	118	103
AL	MONTGOMERY	95	155	135	125	120	106
AL	MUSCLE SHOALS REGIONAL AP	94	154	134	124	119	107
AL	TUSCALOOSA MUNICIPAL AP	95	155	135	125	120	103
AK	**Alaska**						
AK	ADAK NAS	57	117	97	87	82	76
AK	AMBLER	75	135	115	105	100	N/A
AK	ANCHORAGE	70	130	110	100	95	84
AK	BARROW	56	116	96	86	81	78
AK	BARTER IS WSO AP	56	116	96	86	81	N/A
AK	DILLINGHAM (AMOS)	69	129	109	99	94	87
AK	FAIRBANKS/EIELSON AFB	80	140	120	110	105	97
AK	HOMER ARPT	64	124	104	94	89	81
AK	JUNEAU INT`L ARPT	73	133	113	103	98	87
AK	KENAI MUNICIPAL AP	69	129	109	99	94	85
AK	KETCHIKAN INTL AP	71	131	111	101	96	85
AK	KING SALMON	71	131	111	101	96	88
AK	KODIAK	67	127	107	97	92	85
AK	NOME	67	127	107	97	92	87
AK	NORTHWAY AIRPORT	77	137	117	107	102	90
AK	SEWARD	69	129	109	99	94	91
AK	TALKEETNA	76	136	116	106	101	91
AK	VALDEZ (Pioneer Field)	69	129	109	99	94	86
AK	WHITTIER	70	130	110	100	95	83
AK	WRANGEL	70	130	110	100	95	86
AZ	**Arizona**						
AZ	DAVIS MONTHAN AFB	104	164	144	134	129	116
AZ	DOUGLAS BISBEE-DOUGLAS IN	101	161	141	131	126	110
AZ	FLAGSTAFF	85	145	125	115	110	97
AZ	KINGMAN (AMOS)	100	160	140	130	125	114
AZ	LUKE AFB/PHOENIX	110	170	150	140	135	124
AZ	PHOENIX	110	170	150	140	135	122

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
AZ	PRESCOTT LOVE FIELD	93	153	133	123	118	106
AZ	TUCSON	105	165	145	135	130	117
AZ	WINSLOW MUNICIPAL	96	156	136	126	121	111
AZ	YUMA (Yuma Intl Airport)	110	170	150	140	135	123
AR	**Arkansas**						
AR	BATESVILLE (AWOS)	96	156	136	126	121	109
AR	BENTONVILLE	93	153	133	123	118	106
AR	BLYTHEVILLE AFB EL		60	40	30	25	
AR	EAKER AFB	96	156	136	126	121	111
AR	DORADO GOODWIN FIELD	97	157	137	127	122	113
AR	FAYETTEVILLE DRAKE FIELD	94	154	134	124	119	108
AR	FT.SMITH	97	157	137	127	122	112
AR	HARRISON FAA AP	93	153	133	123	118	107
AR	JONESBORO MUNICIPAL	95	155	135	125	120	107
AR	LITTLE ROCK Adams Field	97	157	137	127	122	111
AR	ROGERS (AWOS)	92	152	132	122	117	106
AR	TEXARKANA WEBB FIELD	97	157	137	127	122	110
AR	WALNUT RIDGE (AWOS)	94	154	134	124	119	109
CA	**California**						
CA	ALAMEDA NAS	79	139	119	109	104	105
CA	ARCATA	66	126	106	96	91	93
CA	BAKERSFIELD	102	162	142	132	127	112
CA	BEALE AFB	100	160	140	130	125	113
CA	BISHOP AIRPORT	100	160	140	130	125	110
CA	BLUE CANYON AP	82	142	122	112	107	96
CA	BLYTHE RIVERSIDE CO ARPT	112	172	152	142	137	125
CA	BURBANK-GLENDALE-PASADENA	94	154	134	124	119	115
CA	CAMARILLO (AWOS)	80	140	120	110	105	106
CA	CAMP PENDLETON MCAS	85	145	125	115	110	111
CA	CARLSBAD/PALOMAR	77	137	117	107	102	104
CA	CASTLE AFB	98	158	138	128	123	111
CA	DAGGETT	108	168	148	138	133	120
CA	EDWARDS AFB	105	165	145	135	130	115
CA	EL TORO MCAS	87	147	127	117	112	112
CA	EUREKA	65	125	105	95	90	94
CA	FRESNO	106	166	146	136	131	113
CA	FULLERTON MUNICIPAL	88	148	128	118	113	110
CA	GEORGE AFB	100	160	140	130	125	113
CA	HAYWARD AIR TERM	82	142	122	112	107	109
CA	IMPERIAL	110	170	150	140	135	125
CA	JACK NORTHROP FLD	79	139	119	109	104	105
CA	LANCASTER GEN WM FOX FIEL	101	161	141	131	126	113
CA	LEMOORE REEVES NAS	102	162	142	132	127	117
CA	LIVERMORE MUNICIPAL	97	157	137	127	122	114
CA	LOMPOC (AWOS)	74	134	114	104	99	122
CA	LONG BEACH	86	146	126	116	111	112
CA	LOS ANGELES	78	138	118	108	103	106
CA	MARCH AFB /RIVERSIDE	99	159	139	129	124	114
CA	MCCLELLAN AFB	101	161	141	131	126	113
CA	MODESTO CITY-COUNTY AP	100	160	140	130	125	114
CA	MONTAGUE SISKIYOU COUNTY AP	94	154	134	124	119	N/A
CA	MONTEREY PENINSULA	72	132	112	102	97	102
CA	MOUNT SHASTA	89	149	129	119	114	102
CA	MOUNTAIN VIEW MOFFETT FLD	84	144	124	114	109	105
CA	NAPA COUNTY AP	87	147	127	117	112	111
CA	NORTON AFB/SAN BERN	101	161	141	131	126	115
CA	OAKLAND	77	137	117	107	102	102
CA	ONTARIO	98	158	138	128	123	115
CA	PALM SPRINGS (Intl Airport)	111	171	151	141	136	125
CA	PASO ROBLES MUNICIPAL ARP	100	160	140	130	125	116

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
CA	POINT ARENA	60	120	100	90	85	83
CA	POINT ARGUELLO	64	124	104	94	89	83
CA	POINT MUGU NF	76	136	116	106	101	105
CA	PT.PIEDRAS BLANCA	68	128	108	98	93	96
CA	PORTERVILLE (AWOS)	100	160	140	130	125	111
CA	RED BLUFF MUNICIPAL ARPT	103	163	143	133	128	118
CA	REDDING MUNICIPAL AIRPORT	71	131	111	101	96	120
CA	SACRAMENTO (Executive Airport)	99	159	139	129	124	114
CA	SACRAMENTO METROPOLITAN A	100	160	140	130	125	113
CA	SALINAS MUNICIPAL AP	76	136	116	106	101	106
CA	SAN DIEGO	79	139	119	109	104	107
CA	SAN DIEGO MIRAMAR NAS	85	145	125	115	110	105
CA	SAN DIEGO NORTH ISLAND NA	77	137	117	107	102	108
CA	SANDBERG	90	150	130	120	115	103
CA	SAN FRANCISCO	78	138	118	108	103	105
CA	SAN JOSE INTL AP	90	150	130	120	115	108
CA	SAN LUIS COUNTY REGIONAL	82	142	122	112	107	110
CA	SANTA BARBARA MUNICIPAL A	78	138	118	108	103	110
CA	SANTA MARIA	77	137	117	107	102	107
CA	SANTA ROSA	92	152	132	122	117	111
CA	STOCKTON METROPOLITAN ARP TRAVIS FIELD AFB	100	160	140	130	125	114
CA	TRAVIS FIELD	97	157	137	127	122	115
CA	TUSTIN MCAF	88	148	128	118	113	115
CA	UKIAH MUNICIPAL AP	98	158	138	128	123	117
CA	VISALIA MUNI (AWOS)	99	159	139	129	124	109
CO	**Colorado**						
CO	AKRON WASHINGTON CO AP	93	153	133	123	118	107
CO	ALAMOSA	84	144	124	114	109	95
CO	ASPEN PITKIN CO SAR	83	143	123	113	108	95
CO	AURORA BUCKLEY FIELD ANGB	92	152	132	122	117	105
CO	COLORADO SPRINGS	89	149	129	119	114	100
CO	CORTEZ/MONTEZUMA CO	92	152	132	122	117	104
CO	CRAIG-MOFFAT (AMOS)	89	149	129	119	114	101
CO	DENVER	93	153	133	123	118	105
CO	DENVER/CENTENNIAL	91	151	131	121	116	103
CO	DURANGO/LA PLATA CO	89	149	129	119	114	101
CO	EAGLE	87	147	127	117	112	99
CO	FT. COLLINS	93	153	133	123	118	106
CO	FORT COLLINS (SAWRS)	89	149	129	119	114	100
CO	GRAND JUNCTION	96	156	136	126	121	108
CO	HAYDEN/YAMPA (AWOS)	86	146	126	116	111	100
CO	LA JUNTA MUNICIPAL AP	99	159	139	129	124	111
CO	LIMON	91	151	131	121	116	104
CO	MONTROSE COUNTY AP	92	152	132	122	117	101
CO	RIFLE/GARFIELD RGNL	94	154	134	124	119	104
CO	PUEBLO	97	157	137	127	122	107
CO	TRINIDAD LAS ANIMAS COUNT	92	152	132	122	117	103
CT	**Connecticut**						
CT	BRIDGEPORT	87	147	127	117	112	105
CT	HARTFORD	90	150	130	120	115	103
CT	HARTFORD BRAINARD FD	90	150	130	120	115	N/A
CT	OXFORD (AWOS)	86	146	126	116	111	100
CT	WILLIMANTIC (ASOS)	89	149	129	119	114	101
DE	**Delaware**						
DE	DOVER AFB	91	151	131	121	116	105
DE	GEORGETOWN/SUSSEX	91	151	131	121	116	104
DE	WILMINGTON	91	151	131	121	116	104
FL	**Florida**						
FL	APALACHICOLA MUNI AP	91	151	131	121	116	102

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
FL	CAPE SAN BLAS	86	146	126	116	111	95
FL	CECIL FLD NA	95	155	135	125	120	105
FL	CRESTVIEW BOB SIKES AP	95	155	135	125	120	105
FL	CROSS CITY AIRPORT	93	153	133	123	118	103
FL	DESTIN FT. WALTON	90	150	130	120	115	N/A
FL	EGLIN AFB/VALPARAIS	92	152	132	122	117	103
FL	DAYTONA BEACH	92	152	132	122	117	102
FL	FT. LAUDERDALE	91	151	131	121	116	104
FL	FT. MYERS	93	153	133	123	118	100
FL	GAINESVILE	93	153	133	123	118	106
FL	HOMESTEAD AFB	91	151	131	121	116	99
FL	HURLBURT FIELD (AF)	91	151	131	121	116	102
FL	JACKSONVILLE	94	154	134	124	119	104
FL	JACKSONVILLE NAS	95	155	135	125	120	106
FL	JACKSONVILLE/CRAIG	93	153	133	123	118	102
FL	KEY WEST	90	150	130	120	115	95
FL	KEY WEST NAS	90	150	130	120	115	97
FL	MACDILL AFB/TAMPA	92	152	132	122	117	100
FL	MARATHON AIRPORT	91	151	131	121	116	N/A
FL	MAYPORT NS	94	154	134	124	119	105
FL	MELBOURNE REGIONAL AP	92	152	132	122	117	102
FL	MIAMI	91	151	131	121	116	99
FL	MIAMI/KENDALL-TAMIA	92	152	132	122	117	104
FL	MOLASSES REEF	86	146	126	116	111	90
FL	NASA SHUTTLE FCLTY	91	151	131	121	116	101
FL	OCALA MUNI (AWOS)	93	153	133	123	118	101
FL	ORLANDO EXECUTIVE AP	93	153	133	123	118	102
FL	ORLANDO	93	153	133	123	118	101
FL	ORLANDO SANFORD AIRPORT	94	154	134	124	119	103
FL	PANAMA CITY BAY CO	92	152	132	122	117	104
FL	PENSACOLA	93	153	133	123	118	106
FL	PENSACOLA REGIONAL AP	93	153	133	123	118	105
FL	SAINT PETERSBURG	93	153	133	123	118	101
FL	SARASOTA	91	151	131	121	116	102
FL	SOMBRERO KEY	87	147	127	117	112	92
FL	ST. AUGUSTINE ARPT	91	151	131	121	116	N/A
FL	ST. AUGUSTINE	88	148	128	118	113	101
FL	ST. PETERSBURG CLEAR	93	153	133	123	118	101
FL	SOUTHWEST FLORIDA	93	153	133	123	118	101
FL	TALLAHASSEE	95	155	135	125	120	105
FL	TAMPA	92	152	132	122	117	99
FL	TYNDALL AFB	90	150	130	120	115	104
FL	VENICE PIER	87	147	127	117	112	93
FL	VERO BEACH MUNICIPAL	91	151	131	121	116	101
FL	W. PALM BEACH	91	151	131	121	116	99
FL	WHITING FIELD NAAS	94	154	134	124	119	103
GA	**Georgia**						
GA	ALBANY DOUGHERTY COUNTY A	96	156	136	126	121	106
GA	ATHENS	94	154	134	124	119	108
GA	ATLANTA (NEXRAD)	92	152	132	122	117	103
GA	ATLANTA HARTSFIELD INTL ARPT	93	153	133	123	118	105
GA	ATLANTA/FULTON CO. (FULTON CO BROW)	93	153	133	123	118	105
GA	AUGUSTA BUSH FIELD	96	156	136	126	121	109
GA	AUGUSTA/DANIEL FLD	95	155	135	125	120	108
GA	BRUNSWICK MALCOLM MCKINNO	92	152	132	122	117	102
GA	COLUMBUS	96	156	136	126	121	106
GA	FORT BENNING LAWSON	96	156	136	126	121	108
GA	HUNTER (AAF)	95	155	135	125	120	106
GA	MACON	96	156	136	126	121	107

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
GA	MARIETTA DOBBINS AFB '	93	153	133	123	118	107
GA	MOODY AFB/VALDOSTA	95	155	135	125	120	106
GA	ROME R B RUSSELL AP	95	155	135	125	120	107
GA	SAVANNAH	95	155	135	125	120	106
GA	VALDOSTA WB AIRPORT	95	155	135	125	120	107
GA	WARNER ROBINS AFB	96	156	136	126	121	109
GA	WAYCROSS WARE CO AP	95	155	135	125	120	108
HI	**Hawaii**						
HI	BARBERS POINT NAS	90	150	130	120	115	99
HI	HILO	84	144	124	114	109	93
HI	HONOLULU	89	149	129	119	114	96
HI	KAHULUI	88	148	128	118	113	97
HI	KANEOHE BAY MCAS	84	144	124	114	109	93
HI	KONA INTL AT KEAHOL	86	146	126	116	111	95
HI	LIHUE	84	144	124	114	109	91
HI	MOLOKAI (AMOS)	86	146	126	116	111	101
ID	**Idaho**						
ID	BOISE	96	156	136	126	121	111
ID	BURLEY MUNICIPAL ARPT	92	152	132	122	117	109
ID	CALDWELL (AWOS)	95	155	135	125	120	111
ID	CHALLIS (AMOS)	90	150	130	120	115	106
ID	COEUR D`ALENE (AWOS)	89	149	129	119	114	107
ID	ELK CITY (RAMOS)	92	152	132	122	117	108
ID	IDAHO FALLS	90	150	130	120	115	105
ID	JOSLIN FLD MAGIC VA	93	153	133	123	118	108
ID	LEWISTON NEZ PERCE CNTY A	96	156	136	126	121	111
ID	MCCALL ARPT	84	144	124	114	109	99
ID	MOUNTAIN HOME AFB	98	158	138	128	123	113
ID	MULLAN (AWRS)	86	146	126	116	111	97
ID	SALMON/LEMHI (AWOS)	88	148	128	118	113	104
ID	POCATELLO	93	153	133	123	118	106
IL	**Illinois**						
IL	AURORA MUNICIPAL	90	150	130	120	115	105
IL	BELLEVILLE SCOTT AFB	94	154	134	124	119	106
IL	CAHOKIA/ST LOUIS	94	154	134	124	119	106
IL	CHICAGO	91	151	131	121	116	106
IL	CHICAGO MIDWAY AP	91	151	131	121	116	107
IL	DECATUR AIRPORT	92	152	132	122	117	104
IL	GLENVIEW NAS	92	152	132	122	117	105
IL	LAWRENCEVILLE	92	152	132	122	117	104
IL	MARSEILLES (AMOS)	92	152	132	122	117	106
IL	MATTOON/CHARLESTON	90	150	130	120	115	101
IL	MOLINE	92	152	132	122	117	106
IL	MOUNT VERNON (AWOS)	93	153	133	123	118	102
IL	PEORIA	92	152	132	122	117	105
IL	QUINCY MUNI BALDWIN FLD	92	152	132	122	117	106
IL	ROCKFORD	91	151	131	121	116	104
IL	SOUTHERN ILLINOIS	92	152	132	122	117	103
IL	SPRINGFIELD	92	152	132	122	117	104
IL	STERLING ROCKFALLS	90	150	130	120	115	105
IL	Univ of Illinois WI	91	151	131	121	116	104
IL	W. CHICAGO/DU PAGE	90	150	130	120	115	104
IN	**Indiana**						
IN	EVANSVILLE	93	153	133	123	118	104
IN	FT. WAYNE	90	150	130	120	115	104
IN	GRISSOM AFB/PERU	91	151	131	121	116	106
IN	HUNTINGBURG	91	151	131	121	116	N/A
IN	INDIANAPOLIS	90	150	130	120	115	102
IN	LAFAYETTE PURDUE UNIV AP	92	152	132	122	117	105
IN	MONROE CO	90	150	130	120	115	103

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
IN	SOUTH BEND	90	150	130	120	115	104
IN	TERRE HAUTE HULMAN REGION	91	151	131	121	116	104
IA	**Iowa**						
IA	AMES MUNI ARPT	90	150	130	120	115	102
IA	ANKENY REGIONAL ARP	94	154	134	124	119	109
IA	ATLANTIC	92	152	132	122	117	N/A
IA	BOONE MUNI	91	151	131	121	116	N/A
IA	BURLINGTON MUNICIPAL AP	92	152	132	122	117	106
IA	CARROLL	91	151	131	121	116	N/A
IA	CEDAR RAPIDS	91	151	131	121	116	104
IA	CHARITON	92	152	132	122	117	105
IA	CHARLES CITY	89	149	129	119	114	N/A
IA	CLARION	90	150	130	120	115	N/A
IA	CLINTON MUNI (AWOS)	90	150	130	120	115	101
IA	DES MOINES	92	152	132	122	117	107
IA	DUBUQUE REGIONAL AP	88	148	128	118	113	102
IA	ESTHERVILLE MUNI	89	149	129	119	114	100
IA	FAIR FIELD	93	153	133	123	118	N/A
IA	FORT DODGE (AWOS)	90	150	130	120	115	106
IA	KEOKUK MUNI	93	153	133	123	118	N/A
IA	MARSHALL TOWN MUNI	89	149	129	119	114	100
IA	MASON CITY	90	150	130	120	115	105
IA	OTTUMWA INDUSTRIAL AP	92	152	132	122	117	106
IA	SIOUX CITY	92	152	132	122	117	109
IA	SPENCER	90	150	130	120	115	106
IA	STORM LAKE	91	151	131	121	116	N/A
IA	WASHINGTON	92	152	132	122	117	N/A
IA	WATERLOO	91	151	131	121	116	106
IA	WEBSTER CITY	91	151	131	121	116	101
KS	**Kansas**						
KS	CHANUTE MARTIN JOHNSON AP	96	156	136	126	121	111
KS	COFFEYBILLE MUNI	97	157	137	127	122	113
KS	CONCORDIA BLOSSER MUNI AP	98	158	138	128	123	113
KS	DODGE CITY	99	159	139	129	124	111
KS	ELKHART (AWOS)	99	159	139	129	124	N/A
KS	FORT RILEY MARSHALL AAF	98	158	138	128	123	110
KS	GARDEN CITY MUNICIPAL AP	98	158	138	128	123	110
KS	GOODLAND	96	156	136	126	121	108
KS	GREAT BEND (AWOS)	98	158	138	128	123	112
KS	HAYS MUNI (AWOS)	100	160	140	130	125	113
KS	HILL CITY MUNICIPAL AP	100	160	140	130	125	111
KS	LAWRENCE MUNI AP	97	157	137	127	122	112
KS	LIBERAL MUNI (AWOS)	99	159	139	129	124	110
KS	MANHATTAN RGNL	98	158	138	128	123	114
KS	MCCONNELL AFB	98	158	138	128	123	113
KS	MEDICINE LODGE ASOS	101	161	141	131	126	115
KS	NEWTON (AWOS)	97	157	137	127	122	110
KS	OLATHE/JOHNSON CO	94	154	134	124	119	109
KS	PARSONS/TRI CITY	96	156	136	126	121	112
KS	RUSSELL MUNICIPAL AP	99	159	139	129	124	114
KS	SALINA MUNICIPAL AP	100	160	140	130	125	113
KS	TOPEKA	95	155	135	125	120	111
KS	TOPEKA FORBES	95	155	135	125	120	112
KS	WICHITA MID CONTINENT AP	99	159	139	129	124	112
KS	WICHITA/COL JABARA	97	157	137	127	122	113
KS	WINFIELD/ARK CITY	98	158	138	128	123	112
KY	**Kentucky**						
KY	BOWLING GREEN WARREN CO A	92	152	132	122	117	106
KY	CAPITAL CITY ARPT	90	150	130	120	115	107
KY	CINCINNATI NORTHERN KY AP	90	150	130	120	115	104

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
KY	FORT CAMPBELL (AAF)	93	153	133	123	118	105
KY	FORT KNOX GOODMAN	92	152	132	122	117	107
KY	JACKSON JULIAN CARROLL AP	89	149	129	119	114	101
KY	LEXINGTON	91	151	131	121	116	105
KY	LOUISVILLE	93	153	133	123	118	105
KY	LOUISVILLE BOWMAN	92	152	132	122	117	107
KY	PADUCAH BARKLEY REGIONAL	94	154	134	124	119	104
KY	SOMERSET (AWOS)	93	153	133	123	118	107
LA	**Louisiana**						
LA	ALEXANDRIA ESLER REGIONAL AP	96	156	136	126	121	111
LA	ALEXANDRIA INTERNATIONAL	95	155	135	125	120	108
LA	BARKSDALE AFB	96	156	136	126	121	109
LA	BATON ROUGE	94	154	134	124	119	103
LA	FORT POLK AAF	95	155	135	125	120	108
LA	GRAND ISLE	88	148	128	118	113	95
LA	LAFAYETTE REGIONAL AP	93	153	133	123	118	103
LA	LAKE CHARLES	93	153	133	123	118	105
LA	MONROE REGIONAL AP	96	156	136	126	121	106
LA	NEW ORLEANS	93	153	133	123	118	102
LA	NEW ORLEANS ALVIN CALLEND	92	152	132	122	117	100
LA	NEW ORLEANS LAKEFRONT AP	93	153	133	123	118	105
LA	PATTERSON MEMORIAL	92	152	132	122	117	106
LA	SALT POINT (RAMOS)	91	151	131	121	116	N/A
LA	SHREVEPORT	98	158	138	128	123	113
LA	SOUTHWEST PASS	87	147	127	117	112	96
ME	**Maine**						
ME	AUBURN-LEWISTON	86	146	126	116	111	101
ME	AUGUSTA AIRPORT	83	143	123	113	108	100
ME	BANGOR	86	146	126	116	111	100
ME	BAR HARBOR (AWOS)	80	140	120	110	105	96
ME	BRUNSWICK NAS	85	145	125	115	110	100
ME	CARIBOU	83	143	123	113	108	97
ME	HOULTON INTL ARPT	85	145	125	115	110	99
ME	LORING AFB/LIMESTON	83	143	123	113	108	97
ME	MATINICUS ISLAND	67	127	107	97	92	82
ME	PORTLAND	86	146	126	116	111	101
MD	**Maryland**						
MD	ANDREWS AFB	93	153	133	123	118	106
MD	BALTIMORE	93	153	133	123	118	106
MD	PATUXENT RIVER NAS	91	151	131	121	116	104
MD	SALISBURY	92	152	132	122	117	103
MD	THOMAS POINT	86	146	126	116	111	97
MA	**Massachusetts**						
MA	BOSTON	90	150	130	120	115	103
MA	BUZZARDS BAY (LS)	74	134	114	104	99	85
MA	OTIS ANGB	83	143	123	113	108	98
MA	PROVINCETOWN (AWOS)	82	142	122	112	107	97
MA	SOUTH WEYMOUTH NAS	90	150	130	120	115	102
MA	WORCESTER	85	145	125	115	110	96
MI	**Michigan**						
MI	ALPENA	87	147	127	117	112	104
MI	CHIPPEWA INTL (AWOS)	82	142	122	112	107	102
MI	COPPER HARBOR RAMOS	79	139	119	109	104	98
MI	DETROIT CITY AIRPORT	90	150	130	120	115	104
MI	DETROIT	89	149	129	119	114	103
MI	DETROIT WILLOW RUN AP	90	150	130	120	115	102
MI	ESCANABA (AWOS)	81	141	121	111	106	99
MI	FLINT	88	148	128	118	113	102
MI	GRAND RAPIDS	88	148	128	118	113	100
MI	HANCOCK HOUGHTON CO AP	83	143	123	113	108	102

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
MI	HARBOR BEACH (RAMOS)	88	148	128	118	113	102
MI	HOUGHTON LAKE	86	146	126	116	111	102
MI	IRONWOOD (AWOS)	84	144	124	114	109	102
MI	JACKSON REYNOLDS FIELD	88	148	128	118	113	99
MI	LANSING	88	148	128	118	113	100
MI	MANISTEE (AWOS)	84	144	124	114	109	97
MI	MARQUETTE COUNTY ARPT	83	143	123	113	108	101
MI	MENOMINEE (AWOS)	85	145	125	115	110	102
MI	(MOUNT CLEMENS) SELFRIDGE F	89	149	129	119	114	104
MI	MUSKEGON	85	145	125	115	110	97
MI	OSCODA WURTSMITH AFB	89	149	129	119	114	105
MI	PELLSTON EMMET COUNTY AP	86	146	126	116	111	100
MI	OAKLAND CO INTL	89	149	129	119	114	99
MI	SAGINAW TRI CITY INTL AP	89	149	129	119	114	103
MI	SAULT STE.MARIE	82	142	122	112	107	98
MI	STANNARD ROCK	74	134	114	104	99	94
MI	TRAVERSE CITY	88	148	128	118	113	101
MN	**Minnesota**						
MN	AITKIN NDB (AWOS)	84	144	124	114	109	99
MN	ALBERT LEA (AWOS)	88	148	128	118	113	101
MN	ALEXANDRIA MUNICIPAL AP	88	148	128	118	113	103
MN	BEMIDJI MUNICIPAL	86	146	126	116	111	100
MN	CLOQUET (AWOS)	83	143	123	113	108	98
MN	CROOKSTON MUNI FLD	85	145	125	115	110	117
MN	DULUTH HARBOR (CGS)	84	144	124	114	109	105
MN	DULUTH	83	143	123	113	108	98
MN	ELY MUNI (AWOS)	84	144	124	114	109	101
MN	EVELETH MUNI (AWOS)	84	144	124	114	109	100
MN	FARIBAULT MUNI AWOS	88	148	128	118	113	102
MN	FERGUS FALLS (AWOS)	88	148	128	118	113	109
MN	GRAND RAPIDS (AWOS)	83	143	123	113	108	98
MN	HIBBING	84	144	124	114	109	97
MN	INTERNATIONAL FALLS	85	145	125	115	110	101
MN	LITCHFIELD MUNI	88	148	128	118	113	102
MN	LITTLE FALLS (AWOS)	89	149	129	119	114	103
MN	MANKATO	88	148	128	118	113	103
MN	MINNEAPOLIS-St Paul Intl Arpt	90	150	130	120	115	106
MN	MONTEVIDEO (AWOS)	89	149	129	119	114	103
MN	MORA MUNI (AWOS)	87	147	127	117	112	100
MN	MORRIS MUNI (AWOS)	87	147	127	117	112	103
MN	NEW ULM MUNI (AWOS)	89	149	129	119	114	103
MN	OWATONNA (AWOS)	88	148	128	118	113	101
MN	PEQUOT LAKE (AMOS)	88	148	128	118	113	107
MN	PIPESTONE (AWOS)	88	148	128	118	113	103
MN	REDWOOD FALLS MUNI	91	151	131	121	116	105
MN	ROCHESTER	87	147	127	117	112	103
MN	ROSEAU MUNI (AWOS)	85	145	125	115	110	103
MN	ST. CLOUD	89	149	129	119	114	103
MN	THIEF RIVER (AWOS)	84	144	124	114	109	101
MN	TOFTE (RAMOS)	76	136	116	106	101	95
MN	WHEATON NDB (AWOS)	88	148	128	118	113	103
MN	WILLMAR	87	147	127	117	112	100
MN	WINONA MUNI (AWOS)	90	150	130	120	115	118
MN	WORTHINGTON (AWOS)	87	147	127	117	112	102
MS	**Mississippi**						
MS	COLUMBUS AFB	96	156	136	126	121	107
MS	GOLDEN TRIANGLE (AWOS)	96	156	136	126	121	108
MS	GREENWOOD LEFLORE ARPT	95	155	135	125	120	109
MS	HATTIESBURG LAUREL	95	155	135	125	120	108
MS	JACKSON	95	155	135	125	120	107

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
MS	KEESLER AFB	93	153	133	123	118	105
MS	MCCOMB PIKE COUNTY AP	94	154	134	124	119	105
MS	MERIDAN	95	155	135	125	120	107
MS	MERIDIAN NAAS	96	156	136	126	121	108
MS	NATCHEZ/HARDY (AWOS)	92	152	132	122	117	102
MS	TUPELO C D LEMONS ARPT	95	155	135	125	120	108
MO	**Missouri**						
MO	CAPE GIRARDEAU MUNICIPAL	94	154	134	124	119	106
MO	COLUMBIA	93	153	133	123	118	110
MO	JEFFERSON CITY MEM	94	154	134	124	119	106
MO	JOPLIN MUNICIPAL AP	95	155	135	125	120	109
MO	KAISER MEM (AWOS)	94	154	134	124	119	111
MO	KANSAS CITY	94	154	134	124	119	110
MO	KANSAS CITY DOWNTOWN AP	96	156	136	126	121	111
MO	KIRKSVILLE REGIONAL AP	93	153	133	123	118	108
MO	POPLAR BLUFF (AMOS)	93	153	133	123	118	108
MO	SEDALIA MEMORIAL	95	155	135	125	120	110
MO	SPICKARD (AMOS)	94	154	134	124	119	N/A
MO	SPRINGFIELD	93	153	133	123	118	108
MO	ST LOUIS SPIRIT OF ST LOU	94	154	134	124	119	107
MO	ST. LOUIS	95	155	135	125	120	107
MO	VICHY ROLLA NATL ARPT	94	154	134	124	119	107
MO	WHITEMAN AFB	95	155	135	125	120	109
MT	**Montana**						
MT	BILLINGS	93	153	133	123	118	109
MT	BOZEMAN	89	149	129	119	114	105
MT	BUTTE BERT MOONEY ARPT	86	146	126	116	111	100
MT	CUT BANK	86	146	126	116	111	104
MT	GLASGOW	93	153	133	123	118	108
MT	GLENDIVE (AWOS)	93	153	133	123	118	109
MT	GREAT FALLS	88	148	128	118	113	N/A
MT	GREAT FALLS INTL ARPT	90	150	130	120	115	105
MT	HAVRE CITY-COUNTY AP	93	153	133	123	118	109
MT	HELENA	91	151	131	121	116	106
MT	JORDAN (RAMOS)	95	155	135	125	120	111
MT	KALISPELL	88	148	128	118	113	102
MT	LEWISTOWN	88	148	128	118	113	103
MT	MALMSTROM AFB	91	151	131	121	116	108
MT	MILES CITY MUNICIPAL ARPT	97	157	137	127	122	113
MT	MISSOULA	91	151	131	121	116	105
MT	SIDNEY-RICHLAND	92	152	132	122	117	108
NE	**Nebraska**						
NE	AINSWORTH	94	154	134	124	119	114
NE	ALLIANCE	96	156	136	126	121	111
NE	BEATRICE	96	156	136	126	121	109
NE	OFFUTT AFB/BELLEVUE	94	154	134	124	119	111
NE	BREWSTER FIELD ARPT	94	154	134	124	119	107
NE	COLUMBUS MUNI (AWOS)	92	152	132	122	117	105
NE	FREMONT MUNI AP	92	152	132	122	117	N/A
NE	GRAND ISLAND	95	155	135	125	120	113
NE	HASTINGS	95	155	135	125	120	108
NE	KEARNEY MUNI (AWOS)	93	153	133	123	118	108
NE	LINCOLN	96	156	136	126	121	112
NE	MCCOOK	100	160	140	130	125	116
NE	NORFOLK	93	153	133	123	118	110
NE	NORTH PLATTE	95	155	135	125	120	111
NE	O'NEILL/BAKER FIELD	93	153	133	123	118	113
NE	OMAHA	92	152	132	122	117	109
NE	OMAHA EPPLEY AIRFIELD	94	154	134	124	119	111
NE	SCOTTSBLUFF	95	155	135	125	120	110

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
NE	SIDNEY MUNICIPAL AP	94	154	134	124	119	112
NE	TEKAMAH (ASOS)	92	152	132	122	117	108
NE	VALENTINE MILLER FIELD	96	156	136	126	121	115
NV	**Nevada**						
NV	CALIENTE (AMOS)	98	158	138	128	123	N/A
NV	ELKO	93	153	133	123	118	107
NV	ELY	90	150	130	120	115	102
NV	FALLON NAAS	98	158	138	128	123	N/A
NV	LAS VEGAS	108	168	148	138	133	118
NV	LOVELOCK DERBY FIELD	98	158	138	128	123	111
NV	MERCURY DESERT ROCK AP	103	163	143	133	128	116
NV	NELLIS AFB	109	169	149	139	134	120
NV	RENO	94	154	134	124	119	106
NV	TONOPAH	94	154	134	124	119	104
NV	WINNEMUCCA	96	156	136	126	121	111
NH	**New Hampshire**						
NH	CONCORD	89	149	129	119	114	101
NH	ISLE OF SHOALS (LS)	80	140	120	110	105	96
NH	LEBANON	88	148	128	118	113	100
NH	MANCHESTER	91	151	131	121	116	107
NH	MOUNT WASHINGTON	60	120	100	90	85	72
NH	PEASE AFB/PORTSMOUT	88	148	128	118	113	100
NJ	**New Jersey**						
NJ	ATLANTIC CITY	91	151	131	121	116	104
NJ	BELMAR-FARMINGDALE	90	150	130	120	115	103
NJ	CAPE MAY CO	88	148	128	118	113	99
NJ	MCGUIRE AFB	92	152	132	122	117	106
NJ	MILLVILLE MUNICIPAL AP	91	151	131	121	116	103
NJ	NEWARK	93	153	133	123	118	106
NJ	TETERBORO AIRPORT	91	151	131	121	116	105
NJ	TRENTON MERCER CO AP	91	151	131	121	116	N/A
NM	**New Mexico**						
NM	ALAMOGORDO	100	160	140	130	125	N/A
NM	ALBUQUERQUE	94	154	134	124	119	106
NM	CANON-CLOVIS	96	156	136	126	121	111
NM	CARLSBAD CAVERN CITY AIR	101	161	141	131	126	116
NM	CLAYTON MUNICIPAL AIRPARK C	93	153	133	123	118	105
NM	CLOVIS MUNI (AWOS)	96	156	136	126	121	108
NM	FARMINGTON	94	154	134	124	119	108
NM	GALLUP	90	150	130	120	115	102
NM	HOLLOMAN AFB	98	158	138	128	123	111
NM	ROSWELL INDUSTRIAL AIR PA	99	159	139	129	124	112
NM	SIERRA BLANCA RGNL	87	147	127	117	112	99
NM	TAOS	87	147	127	117	112	98
NM	TRUTH OR CONSEQUENCES MUN	97	157	137	127	122	110
NM	WHITE SANDS TEST RG	98	158	138	128	123	110
NY	**New York**						
NY	ALBANY	88	148	128	118	113	101
NY	BINGHAMTON	84	144	124	114	109	99
NY	BUFFALO	86	146	126	116	111	98
NY	DUNKIRK	81	141	121	111	106	97
NY	ELMIRA CORNING REGIONAL A	89	149	129	119	114	103
NY	FORT DRUM/WHEELER	85	145	125	115	110	98
NY	GALLOO ISLAND	77	137	117	107	102	90
NY	GLENS FALLS	87	147	127	117	112	100
NY	GRIFFISS AFB	88	148	128	118	113	100
NY	ISLIP, LI	87	147	127	117	112	104
NY	JAMESTOWN (AWOS)	82	142	122	112	107	98
NY	MASSENA AP	87	147	127	117	112	99
NY	NYC, JFK	88	148	128	118	113	104

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
NY	NYC, LGA	91	151	131	121	116	104
NY	NIAGARA FALLS AF	87	147	127	117	112	100
NY	PLATTSBURGH AFB	85	145	125	115	110	100
NY	POUGHKEEPSIE DUTCHESS CO	90	150	130	120	115	106
NY	ROCHESTER	87	147	127	117	112	101
NY	STEWART FIELD (NEWBURGH)	89	149	129	119	114	104
NY	SYRACUSE	88	148	128	118	113	102
NY	UTICA ONEIDA COUNTY AP	86	146	126	116	111	99
NY	WATERTOWN AP	84	144	124	114	109	98
NY	WHITE PLAINS	89	149	129	119	114	103
NC	**North Carolina**						
NC	ASHEVILLE	87	147	127	117	112	98
NC	CAPE HATTARAS	86	146	126	116	111	94
NC	CAPE LOOKOUT	84	144	124	114	109	91
NC	CHAROLOTTE	93	153	133	123	118	105
NC	CHERRY POINT MCAS	92	152	132	122	117	105
NC	DIAMOND SHOALS (LS)	83	143	123	113	108	90
NC	FAYETTEVILLE POPE AFB	95	155	135	125	120	108
NC	FORT BRAGG SIMMONS AAF	96	156	136	126	121	109
NC	FRYING PAN SHOALS	84	144	124	114	109	89
NC	SEYMOUR JOHNSON AFB GOLDSBORO	95	155	135	125	120	108
NC	GREENSBORO	91	151	131	121	116	103
	HATTERAS BILLY MITCHELL AP	87	147	127	117	112	97
NC	HICKORY REGIONAL AP	92	152	132	122	117	105
NC	JACKSONVILLE (AWOS)	93	153	133	123	118	105
NC	NEW BERN CRAVEN CO REGL A	93	153	133	123	118	104
NC	NEW RIVER MCAF	92	152	132	122	117	104
NC	PITT GREENVILLE ARP	94	154	134	124	119	105
NC	POPE AFB	96	156	136	126	121	109
NC	RALEIGH/DURHAM	93	153	133	123	118	106
NC	RICHMOND INTERNATIONAL AP	94	154	134	124	119	106
NC	SOUTHERN PINES AWOS	94	154	134	124	119	120
NC	WILMINGTON	92	152	132	122	117	103
NC	WINSTON-SALEM REYNOLDS AP	91	151	131	121	116	102
ND	**North Dakota**						
ND	BISMARK	92	152	132	122	117	113
ND	DEVILS LAKE (AMOS)	353	413	393	383	378	105
ND	DICKINSON MUNICIPAL AP	91	151	131	121	116	109
ND	FARGO	90	150	130	120	115	107
ND	GRAND FORKS	90	150	130	120	115	108
ND	GRAND FORKS INTERNATIONAL	89	149	129	119	114	108
ND	JAMESTOWN MUNICIPAL ARPT	90	150	130	120	115	108
ND	LIDGERWOOD (RAMOS)	91	151	131	121	116	112
ND	MINOT	90	150	130	120	115	106
ND	MINOT AFB	91	151	131	121	116	109
ND	WILLISTON SLOULIN INTL AP	93	153	133	123	118	109
OH	**Ohio**						
OH	AKRON/CANTON	88	148	128	118	113	100
OH	CINCINNATI MUNICIPAL AP L	92	152	132	122	117	105
OH	CLEVELAND	89	149	129	119	114	102
OH	COLUMBUS	90	150	130	120	115	102
OH	COLUMBUS RICKENBACKE	91	151	131	121	116	114
OH	DAYTON	89	149	129	119	114	103
OH	DAYTON WRIGHT PATTERSON A	91	151	131	121	116	103
OH	FINDLAY AIRPORT	89	149	129	119	114	102
OH	MANSFIELD	87	147	127	117	112	99
OH	OHIO STATE UNIVERSITY	90	150	130	120	115	98
OH	SOUTH BASS ISLAND	84	144	124	114	109	97
OH	TOLEDO	90	150	130	120	115	104

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
OH	YOUNGSTOWN	88	148	128	118	113	100
OH	ZANESVILLE MUNICIPAL AP	89	149	129	119	114	103
OK	**Oklahoma**						
OK	ALTUS AFB	102	162	142	132	127	117
OK	CLINTON-SHERMAN	100	160	140	130	125	112
OK	FORT SILL POST FIELD AF	99	159	139	129	124	113
OK	GAGE AIRPORT	99	159	139	129	124	110
OK	HOBART MUNICIPAL AP	101	161	141	131	126	115
OK	LAWTON MUNICIPAL	101	161	141	131	126	114
OK	MCALESTER MUNICIPAL AP	97	157	137	127	122	112
OK	OKLAHOMA CITY	98	158	138	128	123	112
OK	OKLAHOMA CITY TINKER AFB	97	157	137	127	122	112
OK	OKLAHOMA CITY/WILEY	98	158	138	128	123	112
OK	PONCA CITY MUNICIPAL AP	99	159	139	129	124	115
OK	TULSA	97	157	137	127	122	113
OK	VANCE AFB/ENID	99	159	139	129	124	113
OR	**Oregon**						
OR	ASTORIA	72	132	112	102	97	97
OR	AURORA STATE	90	150	130	120	115	108
OR	BAKER MUNICIPAL AP	91	151	131	121	116	108
OR	BURNS MUNICIPAL ARPT	91	151	131	121	116	108
OR	CAPE ARAGO (LS)	63	123	103	93	88	86
OR	CORVALLIS	91	151	131	121	116	110
OR	EUGENE	89	149	129	119	114	108
OR	KLAMATH FALLS INTL AP	89	149	129	119	114	106
OR	MEACHAM	85	145	125	115	110	101
OR	MEDFORD	97	157	137	127	122	113
OR	NEWPORT STATE BEACH	62	122	102	92	87	98
OR	NORTH BEND	68	128	108	98	93	95
OR	PENDLETON	94	154	134	124	119	111
OR	PORTLAND	89	149	129	119	114	107
OR	PORTLAND/HILLSBOR	90	150	130	120	115	108
OR	REDMOND	91	151	131	121	116	107
OR	SALEM	90	150	130	120	115	108
OR	SEXTON SUMMIT	82	142	122	112	107	98
PA	**Pennsylvania**						
PA	ALLENTOWN	90	150	130	120	115	102
PA	ALTOONA BLAIR CO ARPT	87	147	127	117	112	102
PA	BRADFORD	83	143	123	113	108	94
PA	BUTLER CO. (AWOS)	87	147	127	117	112	99
PA	DUBOIS FAA AP	85	145	125	115	110	98
PA	ERIE	86	146	126	116	111	100
PA	FRANKLIN	84	144	124	114	109	95
PA	HARRISBURG	91	151	131	121	116	106
PA	JOHNSTOWN CAMBRIA COUNTY	84	144	124	114	109	99
PA	MIDDLETOWN HARRISBURG INT	92	152	132	122	117	107
PA	PHILADELPHIA	92	152	132	122	117	105
PA	PHILADELPHIA NE	92	152	132	122	117	105
PA	PITTSBURGH	89	149	129	119	114	102
PA	PITTSBURGH ALLEGHENY CO A	89	149	129	119	114	102
PA	READING SPAATZ FIELD	91	151	131	121	116	N/A
PA	WASHINGTON (AWOS)	88	148	128	118	113	N/A
PA	WILKES-BARRE/S	88	148	128	118	113	101
PA	WILLIAMSPORT	90	150	130	120	115	103
PA	WILLOW GROVE NAS	92	152	132	122	117	103
RI	**Rhode Island**						
RI	BLOCK ISLAND STATE ARPT	80	140	120	110	105	94
RI	PROVIDENCE	87	147	127	117	112	N/A
SC	**South Carolina**						
SC	ANDERSON COUNTY AP	94	154	134	124	119	106

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
SC	BEAUFORT	94	154	134	124	119	108
SC	CHARLESTON	93	153	133	123	118	104
SC	COLUMBIA	96	156	136	126	121	109
SC	FLORENCE REGIONAL AP	95	155	135	125	120	107
SC	FOLLY BEACH	87	147	127	117	112	98
SC	GREENVILLE	93	153	133	123	118	106
SC	MYRTLE BEACH	91	151	131	121	116	106
SC	SUMTER SHAW AFB	95	155	135	125	120	108
SD	**South Dakota**						
SD	ABERDEEN REGIONAL ARPT	91	151	131	121	116	112
SD	BROOKINGS (AWOS)	87	147	127	117	112	102
SD	BUFFALO	94	154	134	124	119	118
SD	CHAMBERLAIN (AMOS)	95	155	135	125	120	117
SD	CHAN GURNEY MUNI	91	151	131	121	116	108
SD	CUSTER (RAMOS)	86	146	126	116	111	100
SD	ELLSWORTH AFB	94	154	134	124	119	113
SD	HURON	93	153	133	123	118	114
SD	MITCHELL (AWOS)	92	152	132	122	117	115
SD	MOBRIDGE	93	153	133	123	118	116
SD	PIERRE	97	157	137	127	122	117
SD	RAPID CITY	95	155	135	125	120	113
SD	SIOUX FALLS	91	151	131	121	116	111
SD	WATERTOWN MUNICIPAL AP	89	149	129	119	114	106
TN	**Tennessee**						
TN	BRISTOL	89	149	129	119	114	101
TN	CHATTANOOGA	94	154	134	124	119	105
TN	CROSSVILLE MEMORIAL AP	88	148	128	118	113	101
TN	DYERSBURG MUNICIPAL AP	93	153	133	123	118	102
TN	JACKSON MCKELLAR-SIPES RE	94	154	134	124	119	104
TN	KNOXVILLE	92	152	132	122	117	104
TN	MEMPHIS AP	95	155	135	125	120	106
TN	MILLINGTON MUNI ARP	97	157	137	127	122	108
TN	NASHVILLE	93	153	133	123	118	105
TX	**Texas**						
TX	ABILENE	98	158	138	128	123	110
TX	ABILENE DYESS AFB	100	160	140	130	125	113
TX	ALICE INTL AP AMARILLO	99	159	139	129	124	114
TX	AMARILLO	96	156	136	126	121	109
TX	AUSTIN/BERGSTROM	98	158	138	128	123	111
TX	BEEVILLE CHASE NAAS	99	159	139	129	124	111
TX	BROWNSVILLE	95	155	135	125	120	106
TX	BURNET MUNI	97	157	137	127	122	114
TX	CAMP MABRY	98	158	138	128	123	111
TX	CHILDRESS MUNICIPAL AP	100	160	140	130	125	117
TX	COLLEGE STATION EASTERWOO	98	158	138	128	123	111
TX	CORPUS CHRISTI	95	155	135	125	120	107
TX	CORPUS CHRISTI NAS	92	152	132	122	117	106
TX	COTULLA FAA AP	101	161	141	131	126	112
TX	COX FLD	97	157	137	127	122	110
TX	DALHART MUNICIPAL AP	97	157	137	127	122	108
TX	DALLAS HENSLEY FIELD NAS	98	158	138	128	123	110
TX	DALLAS LOVE FIELD	99	159	139	129	124	112
TX	DALLAS/FT. WORTH	99	159	139	129	124	113
TX	DEL RIO INTERNATIONAL AP	100	160	140	130	125	111
TX	DRAUGHTON MILLER CEN	98	158	138	128	123	110
TX	EL PASO	100	160	140	130	125	112
TX	FORT WORTH MEACHAM	96	156	136	126	121	113
TX	FORT WORTH NAS	99	159	139	129	124	110
TX	FORT WORTH/ALLIANCE	100	160	140	130	125	115
TX	GALVESTON	91	151	131	121	116	102

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
TX	HARLINGEN RIO GRANDE VALL	98	158	138	128	123	104
TX	HONDO MUNICIPAL AP	98	158	138	128	123	110
TX	HOUSTON	96	156	136	126	121	108
TX	HOUSTON ELLINGTON AFB	95	155	135	125	120	108
TX	HOUSTON WILLIAM P HOBBY A	94	154	134	124	119	106
TX	JUNCTION KIMBLE COUNTY AP	99	159	139	129	124	109
TX	KELLY AFB	99	159	139	129	124	111
TX	KILLEEN MUNI (AWOS)	98	158	138	128	123	110
TX	KINGSVILLE	97	157	137	127	122	106
TX	LAREDO INTL AP	102	162	142	132	127	113
TX	LAUGHLIN AFB	103	163	143	133	128	116
TX	LONGVIEW GREGG COUNTY AP	97	157	137	127	122	110
TX	LUBBOCK INTERNATIONAL AP	98	158	138	128	123	113
TX	LUFKIN ANGELINA CO	96	156	136	126	121	110
TX	MARFA AP	93	153	133	123	118	105
TX	MC GREGOR (AWOS)	99	159	139	129	124	111
TX	MCALLEN MILLER INTL AP	99	159	139	129	124	110
TX	MIDLAND/ODESSA	99	159	139	129	124	114
TX	NACOGDOCHES (AWOS)	96	156	136	126	121	109
TX	PALACIOS MUNICIPAL AP	91	151	131	121	116	104
TX	PINE SPRINGS GUADALUPE MO	92	152	132	122	117	107
TX	PORT ARANSAS	85	145	125	115	110	96
TX	PORT ARTHUR	93	153	133	123	118	105
TX	RANDOLPH AFB	98	158	138	128	123	111
TX	REESE AFB	99	159	139	129	124	117
TX	ROCKPORT/ARANSAS CO	92	152	132	122	117	108
TX	SABINE	87	147	127	117	112	99
TX	SAN ANGELO	99	159	139	129	124	112
TX	SAN ANTONIO	98	158	138	128	123	109
TX	SAN ANTONIO/STINSON	99	159	139	129	124	111
TX	SANDERSON (RAMOS)	97	157	137	127	122	112
TX	STEPHENVILLE CLARK FIELD	96	156	136	126	121	107
TX	VICTORIA	96	156	136	126	121	108
TX	WACO	99	159	139	129	124	112
TX	WICHITA FALLS	101	161	141	131	126	113
TX	WINK WINKLER COUNTY AP	103	163	143	133	128	118
UT	**Utah**						
UT	CEDAR CITY	93	153	133	123	118	104
UT	LOGAN/CACHE AP	93	153	133	123	118	106
UT	MILFORD MUNICIPAL AP	95	155	135	125	120	107
UT	OGDEN HILL AFB	92	152	132	122	117	105
UT	PRICE/CARBON (RAMOS)	91	151	131	121	116	102
UT	SAINT GEORGE (AWOS)	105	165	145	135	130	116
UT	SALT LAKE CITY	96	156	136	126	121	109
UT	VERNAL	92	152	132	122	117	103
UT	WENDOVER USAF AUXILIARY F	95	155	135	125	120	107
VT	**Vermont**						
VT	BURLINGTON	87	147	127	117	112	102
VT	MONTPELIER	84	144	124	114	109	99
VT	MORRISVILLE/STONE	84	144	124	114	109	100
VT	RUTLAND	84	144	124	114	109	97
VT	SPRINGFIELD/HARTNES	87	147	127	117	112	106
VA	**Virginia**						
VA	ABINGTON	89	149	129	119	114	95
VA	CHESAPEAKE	83	143	123	113	108	93
VA	DANVILLE FAA	92	152	132	122	117	105
VA	DINWIDDIE CO	97	157	137	127	122	110
VA	FARMVILLE	94	154	134	124	119	106
VA	FORT BELVOIR/DAVISO	95	155	135	125	120	108
VA	HILLSVILLE	84	144	124	114	109	95

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
VA	HOT SPRINGS/INGALLS	82	142	122	112	107	95
VA	LANGLEY AFB	92	152	132	122	117	104
VA	LEESBURG/GODFREY	94	154	134	124	119	104
VA	LYNCHBURG	91	151	131	121	116	103
VA	MANASSAS MUNI (AWOS)	92	152	132	122	117	103
VA	NEWPORT NEWS	93	153	133	123	118	108
VA	NORFOLK	93	153	133	123	118	104
VA	OCEANA NAS	92	152	132	122	117	103
VA	QUANTICO MCAS	92	152	132	122	117	105
VA	ROANOKE	91	151	131	121	116	105
VA	WASHINGTON-DULLES INTL AP	92	152	132	122	117	106
VA	WASHINGTON REAGAN AP	93	153	133	123	118	106
WA	**Washington**						
WA	ARLINGTON MUNI	81	141	121	111	106	99
WA	BELLINGHAM INTL AP	78	138	118	108	103	95
WA	BREMERTON NTNL AWOS	84	144	124	114	109	102
WA	DESTRUCTION ISLAND	63	123	103	93	88	80
WA	FAIRCHILD AFB	90	150	130	120	115	106
WA	FELTS FLD SPOKANE+D935	93	153	133	123	118	107
WA	FRIDAY HARBOR	77	137	117	107	102	98
WA	GRAY AAF	84	144	124	114	109	103
WA	HANFORD	99	159	139	129	124	114
WA	HOQUIAM AP	73	133	113	103	98	95
WA	KELSO WB AP	85	145	125	115	110	107
WA	OLYMPIA	85	145	125	115	110	104
WA	OMAK	96	156	136	126	121	109
WA	PASCO	97	157	137	127	122	118
WA	PEARSON FLD	89	149	129	119	114	108
WA	PULLMAN/MOSCOW RGNL	90	150	130	120	115	105
WA	QUILLAYUTE	77	137	117	107	102	100
WA	SEATTLE BOEING FIELD	84	144	124	114	109	101
WA	SEATTLE/TACOMA	83	143	123	113	108	102
WA	SPOKANE	91	151	131	121	116	105
WA	STAMPEDE PASS	77	137	117	107	102	98
WA	TACOMA MCCHORD AFB	84	144	124	114	109	101
WA	TACOME NARROWS	82	142	122	112	107	105
WA	TATOOSH ISLAND	62	122	102	92	87	79
WA	WALLA WALLA	96	156	136	126	121	114
WA	WENATCHEE/PANGBORN	94	154	134	124	119	107
WA	WEST POINT (LS)	69	129	109	99	94	82
WA	WHIDBEY ISLAND NAS	71	131	111	101	96	88
WA	WILLIAM R FAIRCHILD	77	137	117	107	102	100
WA	YAKIMA	94	154	134	124	119	108
WV	**West Virginia**						
WV	BECKLEY RALEIGH CO MEM AP	84	144	124	114	109	96
WV	BLUEFIELD/MERCER CO	83	143	123	113	108	97
WV	CHARLESTON	90	150	130	120	115	103
WV	ELKINS	86	146	126	116	111	99
WV	HARRISON MARION RGN	89	149	129	119	114	100
WV	HUNTINGTON	91	151	131	121	116	104
WV	MARTINSBURG	92	152	132	122	117	107
WV	MORGANTOWN	88	148	128	118	113	101
WV	PARKERSBURG WOOD COUNTY A	90	150	130	120	115	103
WI	**Wisconsin**						
WI	DEVIL`S ISLAND	77	137	117	107	102	97
WI	EAU CLAIRE	89	149	129	119	114	105
WI	GREEN BAY	87	147	127	117	112	103
WI	LA CROSSE	91	151	131	121	116	108
WI	MADISON	89	149	129	119	114	103
WI	MANITOWAC MUNI AWOS	84	144	124	114	109	106

		2% Design Temp.	Temperature inside conduit in direct sunlight				Max Temp.
			Distance above roof. Up to:				
			1/2"	3½"	12"	36"	
WI	MILWAUKEE	89	149	129	119	114	105
WI	PARK FALLS MUNI	83	143	123	113	108	N/A
WI	PHILLIPS/PRICE CO.	84	144	124	114	109	99
WI	SHEBOYGAN	86	146	126	116	111	N/A
WI	SHEBOYGAN	82	142	122	112	107	99
WI	WAUSAU	87	147	127	117	112	102
WY	**Wyoming**						
WY	BIG PINEY	84	144	124	114	109	97
WY	CASPER	93	153	133	123	118	104
WY	CHEYENNE	88	148	128	118	113	100
WY	CODY MUNI (AWOS)	89	149	129	119	114	103
WY	GILLETTE (AMOS)	94	154	134	124	119	109
WY	JACKSON HOLE (AWOS)	82	142	122	112	107	97
WY	LANDER	91	151	131	121	116	103
WY	LARAMIE GENERAL BREES FIE	84	144	124	114	109	96
WY	ROCK SPRINGS ARPT	87	147	127	117	112	100
WY	WORLAND MUNICIPAL	95	155	135	125	120	110
WY	YELLOWSTONE LAKE (RAMOS)	75	135	115	105	100	91
WY	SHERIDAN	94	154	134	124	119	109
	CANADA						
ALB	**Alberta**						
ALB	Banff	79	139	119	109	104	87
ALB	Calgary AP	82	142	122	112	107	89
ALB	Edmonton City Ctr	80	140	120	110	105	88
ALB	Jasper	80	140	120	110	105	87
BC	**British Columbia**						
BC	Vancouver AP	76	136	116	106	101	83
BC	Victoria AP	78	138	118	108	103	87
MAN	**Manitoba**						
MAN	Winnepeg AP	86	146	126	116	111	93
NB	**New Brunswick**						
NB	Fredericton	84	144	124	114	109	92
NB	Moncton	82	142	122	112	107	90
NB	St. John	78	138	118	108	103	85
NF	**Newfoundland & Labrador**						
NF	Gander AP	77	137	117	107	102	85
NF	St. John's	75	135	115	105	100	82
NS	**Nova Scotia**						
NS	Halifax AP	80	140	120	110	105	88
NS	Yarmouth	72	132	112	102	97	79
ON	**Ontario**						
ON	Gore Bay	80	140	120	110	105	86
ON	London AP	85	145	125	115	110	91
ON	Sault Ste. Marie	82	142	122	112	107	88
ON	Toronto AP	74	134	114	104	99	93
ON	Thunder Bay	83	143	123	113	108	91
PEI	**Prince Edward Island**						
	Charlottetown	79	139	119	109	104	86
QUE	**Quebec**						
QUE	Gaspe	81	141	121	111	106	90
QUE	Montreal Int AP	84	144	124	114	109	89
QUE	Trois Rivieres	81	141	121	111	106	86
SAS	**Sakatchewan**						
SAS	Hudson Bay	83	143	123	113	108	91
SAS	Moose Jaw	89	149	129	119	114	97
SAS	Saskatoon Int AP	86	146	126	116	111	95
YUK	**Yukon Terr**						
YUK	Whitehorse	77	137	117	107	102	84

Footnotes

1. ASHRAE bases its "warm-season temperature conditions" for each city on annual percentiles of 0.4%, 2 %, 5% and 10%. As an example, the June 2.0% dry-bulb design temperature for Atlanta is 91.7°F. Therefore, based on a 30-day month (i.e., 720 hours), the actual temperatures can be expected to exceed 91.7°F for total of 14 hours a month. The corresponding 5.0% design temperature (89.3°F) can be expected to be exceeded for 36 hours a month; while the 0.4% design temperature (94.7°F) can be expected to be exceeded for 3 hours a month.

2. Calculations shown in the table are based on ASHRAE 2% design temperatures for 10 years of data* and CDA research covering over five years of monitoring air temperatures inside rooftop raceways.** The table uses the average of the June through August dry-bulb design temperatures—generally the hottest months of the year—in calculating the design temperatures in this table. All temperatures are rounded to the nearest whole number. The results can then be used to apply the correction factors in Table 310.15(B)(2)(a) of the National Electrical Code.

*ASHRAE has compiled 10 years of dry-bulb design temperature data in the *2009 ASHRAE Handbook of Fundamentals* (The American Society of Heating, Refrigerating and Air-Conditioning Engineers. Chapter 14, Climatic Design Information). The table covers most of the U.S. and selected Canadian weather station locations included in the ASHRAE Handbook. The complete Handbook can be ordered directly from ASHRAE (www.ashrae.org). (CDA recommends the CD format, Product Code 81092, to obtain complete climatic conditions.)

**The research is described in an article written for the International Association of Electrical Inspectors—IAEI News, Effect of Rooftop Exposure on Ambient Temperatures Inside Conduits, January-February, 2006, and published in IEEE Transactions on Industry Applications, Vol. 44, No. 6, November/December 2008. The data and this table are available on www.copper.org, or in print from the Copper Development Association.

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