TABLE 2. SUMMER CLIMATIC CONDITIONS[a] (CONTINUED)
Suggested Design Wet-Bulb and Dry-Bulb Temperatures

Col. 1 State	Col. 2 Station[b]	Col. 3 Elevation[c] Ft	Col. 4 Period of Record[d]	Col. 5 Highest Temp. Ever Recorded[d] °F	Col. 6 Design Dry-Bulb Temp. on T.A.C. 2½% Basis[e] °F	Col. 7 Design Dry-Bulb Temp. in Common Use[f] °F	Col. 8 Design Wet-Bulb Temp. in Common Use[f] °F	Col. 9 Average Summer Wind Velocity[g] Mph
S. C.	Columbia CO	401	1887–1947	106	...	95	75	...
	Columbia AP	227	1939–1947[d]	104	...	...	...	...
S. D.	Huron CO	1342	1881–1938[d]	111	...	95	75	10.3
	Huron AP	1287	1938–1947	110	...	...	...	...
	Rapid City CO	3309	1888–1947	106	...	95	70	7.9
	Rapid City AP	3220	1939–1947	108	...	...	...	...
Tenn.	Chattanooga CO	952	1879–1947	103	...	95	76	5.6
	Chattanooga AP	675	1940–1947	105	94	...	...	...
	Knoxville CO	1024	1871–1942[d]	104	...	95	75	5.7
	Knoxville AP	1007	1942–1947	102	94	...	...	...
	Memphis CO	348	1872–1941[d]	106	...	95	78	7.3
	Memphis AP	267	1941–1947	105	96	...	...	...
	Nashville CO	714	1871–1947	106	...	95	78	...
	Nashville AP	610	1939–1947	104	...	...	...	...
Texas	Abilene CO	1748	1885–1944[d]	111	...	100	74	...
	Abilene AP	1756	1940–1947	109	97	...	...	...
	Amarillo CO	3688	1892–1941	107	...	100	72	11.8
	Amarillo AP	3595	1941–1947	106	96	...	...	...
	Austin CO	625	1897–1942	109	...	100	78	...
	Austin AP	625	1942–1947	104	...	...	...	...
	Brownsville CO	140	1922–1943[d]	102	...	100	80	7.0
	Brownsville AP	25	1943–1947	100	...	...	...	...
	Corpus Christi CO	21	1887–1942	105	...	95	80	...
	Corpus Christi AP	45	1943–1946	101	...	...	...	...
	Dallas CO	732	1913–1940	110	...	100	78	9.3
	Dallas AP	520	1940–1947	109	99	...	...	...
	Del Rio CO	1020	1905–1947	111	...	100	78	...
	El Paso CO	3792	1887–1942	106	...	100	69	8.4
	El Paso AP	3956	1939–1947	104	97	...	...	...
	Fort Worth CO	708	1898–1939	112	...	100	78	9.5
	Fort Worth AP	728	1940–1947	110	...	...	...	...
	Galveston CO	128	1871–1947	101	...	95	80	9.7
	Galveston AP	9	1939–1947	101	...	...	...	...
	Houston CO	198	1888–1947	108	...	95	80	8.8
	Houston AP	73	1932–1947	105	93	...	...	...
	Palestine CO	555	1881–1947	108	...	100	78	...
	Port Arthur CO	64	1917–1947	102	...	95	79	...
	Port Arthur AP	21	1944–1947	98	...	...	...	...
	San Antonio CO	770	1885–1941[d]	107	...	100	78	7.8
	San Antonio AP	800	1942–1947	104	98	...	...	...
	Waco AP	513	1931–1947	111	98	...	...	...
	Wink AP	2811	1935–1939	110	99	...	...	...
Utah	Milford AP	5095	1935–1939	103	94	...	...	...
	Modena CO	5472	1901–1947	101	...	95	65	...
	Salt Lake City CO	4346	1874–1947	105	...	95	65	9.8
	Salt Lake City AP	4254	1928–1947	106	95	...	...	...
Vt.	Burlington CO	409	1884–1943[d]	100	...	90	73	8.5
	Burlington AP	335	1943–1947	101	...	...	...	...
Va.	Cape Henry CO	24	1874–1947	104	...	95	78	...
	Lynchburg CO	644	1874–1944	106	...	95	75	...
	Lynchburg AP	951	1944–1947	100	...	...	...	...
	Norfolk CO	91	1871–1947	105	...	95	78	10.1
	Richmond CO	180	1897–1947	107	...	95	78	6.4
	Richmond AP	172	1929–1947	104	92	...	...	...
	Roanoke AP	1194	1935–1939	103	90	95	76	...
Wash.	Ellensburg AP	1731	1935–1939	105	90	...	...	...
	North Head CO	199	1884–1947	97	...	85	65	...
	Seattle CO	104	1890–1947	100	...	85	65	7.7
	Seattle AP	47	1928–1947	99	81	...	...	...
	Spokane CO	2030	1881–1941[d]	108	...	93	65	6.5
	Spokane AP	1974	1941–1947	104	92	...	...	...
	Tacoma CO	279	1897–1947	98	...	85	64	...
	Tatoosh Island CO	110	1883–1947	88	...	...	...	...
	Yakima CO	1160	1928–1946	110	...	95	65	...
	Yakima AP	1066	1944–1947	103	...	...	...	...
W. Va.	Parkersburg CO	685	1888–1947	106	...	95	75	5.2
Wisc.	Green Bay CO	598	1886–1947	104	...	95	75	9.2
	La Crosse CO	725	1872–1947	108	...	95	75	6.4
	La Crosse AP	677	1943–1947	96	91	...	...	...
	Madison CO	1008	1858–1947	107	...	95	75	7.9
	Madison AP	884	1935–1939	106	89	...	...	...
	Milwaukee CO	744	1870–1947	105	...	95	75	9.8
	Milwaukee AP	707	1927–1947	106	87	...	...	...
Wyo.	Cheyenne CO	6144	1873–1935	100	...	95	65	9.2
	Cheyenne AP	6161	1935–1947	100	89	...	...	...
	Lander CO	5448	1891–1946	102	...	95	65	7.4
	Lander AP	5568	1936–1947	97	...	...	...	...
	Rock Springs AP	6746	1932–1942	98	87	...	...	...

TABLE 2. SUMMER CLIMATIC CONDITIONS[a] (CONCLUDED)
Suggested Design Wet-Bulb and Dry-Bulb Temperatures

Col. 1 Prov. of Canada[j]	Col. 2 Station[b]	Col. 3 Elevation[c]	Col. 4 Period of Record[k]	Col. 5 Highest Temp. on Record[k]	Col. 6 Summer Design Temp. 1% F	Col. 7 Summer Design Temp. 2% F	Col. 8 Summer Design Temp. 5% F	Col. 9 Summer Design Temp. 10% F	Col. 10 Design DB Temp. in Common Use[f] F	Col. 11 Design WB Temp. in Common Use[f] F	Col. 12 Avg. Summer Wind Velocity[m] Mph
Alta.	Calgary AP	3540[c]	1921–1950	97	86	83	80	77	90	66	9.7
	Edmonton AP	2219[c]	1921–1950	99	87	83	80	77	90	68	8.9
	Medicine Hat AP	2365[c]	1921–1950	106	92	89	86	82	90	65	9.1
B.C.	Vancouver AP	22[c]	1938–1950	97	80	77	75	72	80	67	7.8
Man.	Winnipeg AP	786[c]	1921–1950	108	89	86	84	81	90	71	11.5
N.B.	Fredericton CO	164[c]	1921–1950	102	89	87	84	81	90	75	
	Saint John CO	119[c]	1921–1950	93	80	77	75	72			7.9
N.S.	Halifax CO	83[c]	1921–1950	94	80	78	76	73	90	75	6.6
	Sydney AP	197[c]	1921–1950	95	85	83	80	75			9.9
Ont.	Fort William AP	644[c]	1921–1950	104	85	82	79	76			8.4
	North Bay AP	1210[c]	1925–1950	99	83	80	77	74			9.6
	Ottawa AP	339[c]	1921–1950	102	89	86	84	81	90	75	8.9
	Sault Ste. Marie CO	635[c]	1921–1950	99	83	80	77	74	93	75	
	Toronto CO	379[c]	1921–1950	105	88	86	83	81	93	75	8.1
	Toronto AP	578[c]	1938–1950	101	90	87	84	81			8.7
P.E.I.	Charlottetown CO	74[c]	1921–1950	98	82	79	77	74			8.7
Que.	Montreal CO	187[c]	1921–1950	97	87	84	82	79	90	75	9.9
	Montreal AP	98[c]	1942–1950	96	88	85	83	80			9.5
	Quebec CO	296[c]	1921–1950	96	85	82	80	77	90	75	9.0
Sask.	Regina AP	1884[c]	1921–1950	111	91	88	85	81	90	71	12.4
	Saskatoon AP	1645[c]	1921–1950	104	92	89	85	81	90	70	10.7

Notes for Table 2

[a] Data compiled from U. S. Weather Bureau Data and various other sources.

[b] Column 2. The station designation AP or CO indicates airport or city office station, respectively.

[c] Column 3. The elevations marked c are ground elevations of the station. All other elevations given are the actual elevations of the thermometer bulb above mean sea level, corrected to 1948.

[d] The periods of record indicated apply only to the highest temperature ever recorded shown in Column 5, and do not necessarily include all of the summer months of the first year indicated. The last year indicated includes July or August, except those marked d which terminate prior to July of that year.

[e] It should be noted that Column 6 in the United States section of the table applies only to airports, as these data for city stations are not available at this time. The temperature shown is the maximum hourly outdoor temperature which has been equalled or exceeded 2½ percent of the total hours of June, July, August and September for the 5-year period 1935–1939 inclusive. It is pointed out that in most cases the airport stations are outside of the city, and that these data would apply primarily to rural areas.

[f] Columns 7 and 8 in the United States section and Columns 9 and 10 in the Canadian section of the table record wet and dry-bulb temperatures in use by A.S.H.A.E. members as reported by Chapter secretaries for various stations. Where such values were not available, the design temperatures published by API or obtained from various other sources have been inserted.

[g] The average wind velocities in Column 9 in the United States section were furnished by the U. S. Weather Bureau, corrected to 1948. In general these velocities are averages for the months of June through September.

[h] The bulletin published by the A.S.H.A.E. for the annual weather data of Detroit indicates 73 F as the design wet-bulb temperature which has been equalled or exceeded 5 percent of the hours for period 1935–39.

[i] Blank spaces indicate data not available.

[j] The data for Canada were compiled by D. W. Boyd and Morley Thomas from the records of the Meteorological Division, National Research Council of Canada.

[k] The highest temperature ever recorded in the Canadian section of the table is for the 30 year period, 1921–1950, where available. In some cases the stations have been relocated and in a few instances some years are missing.

[l] In the Canadian section of the table, the summer design dry-bulb temperatures for the basis of 1, 2½, 5 and 10 percent are the Fahrenheit temperature values at or above which these percentages of all the July hourly outdoor temperatures occur, for the years 1941–1950 inclusive.

[m] Most of the wind speeds are based on the periods ending in 1947 which are somewhat shorter than the periods for the highest temperatures. The three months June, July and August were used.

INSTANTANEOUS HEAT LOAD

The total cooling load is frequently divided for convenience into two components, *sensible heat* and *latent heat*. While this subdivision is not imperative, past practice has found it convenient.

A gain of *sensible heat* is considered to occur when there is a direct addi-