

TABLE 1. WINTER CLIMATIC CONDITIONS^a—(CONCLUDED)

COL. 1 STATE	COL. 2 STATION ^b	COL. 3 ELEVATION ^c FT	COL. 4 PERIOD OF RECORD ^d	COL. 5 LOWEST TEMP. ON RECORD ^d °F	COL. 6 AVERAGE ANNUAL MIN. TEMP. ^e °F	COL. 7 DESIGN DRY-BULB TEMP. ON TAC 97% ^f BASIS ¹ °F	COL. 8 WIND VEL. AT DESIGN TEMP. ⁴ MPH	COL. 9 DESIGN DRY-BULB TEMP. IN COMMON USE ⁵ °F	COL. 10 AVG. WIND VEL.—DEC. JAN.—FEB. ¹ MPH
Wisc.	Green Bay.....CO	598	1886-1947	-36	-18			-20	10.6
	La Crosse.....CO	725	1872-1947	-43	-21			-25	8.9
	La Crosse.....AP	677	1943-1947	-28		-17	6.9		
	Madison.....CO	1008	1858-1947	-29				-15	10.1
	Madison.....AP	884	1935-1939 ⁴			-8	9.1		
	Milwaukee.....CO	744	1870-1947	-25	-12			-15	12.1
	Milwaukee.....AP	707	1927-1947	-29		-6	11.9		
Wyo.	Cheyenne.....CO	6144	1873-1935	-38				15	13.3
	Cheyenne.....AP	6161	1935-1947	-34		-3	11.1		
	Lander.....CO	5448	1891-1946	-40	-12			-18	3.9
	Lander.....AP	5568	1946-1947	-14					
	Rock Springs.....AP	6746	1932-1942	-33		-7	9.1		
Alta.	Edmonton.....	2219 ^c	Up to 1943	-57	-41			-40	7.5
B. C.	Vancouver.....	22 ^c	Up to 1943	2	13			10	4.5
	Victoria.....	228 ^c	Up to 1943	-2	19			5	12.6
Man.	Winnipeg.....	786 ^c	Up to 1943	-54	-38			-35	10.1
N. B.	Fredericton.....	164 ^c	Up to 1943	-35	-25			-20	9.1
N. S.	Yarmouth.....	136 ^c	Up to 1943	-12	0			-5	14.3
Ont.	London.....	912 ^c	Up to 1943	-27	-14			-5	10.3
	Ottawa.....	294 ^c	Up to 1943	-35	-24			-20	8.4
	Fort Arthur.....	644 ^c	Up to 1943	-40	-29			-30	8.0
	Toronto.....	379 ^c	Up to 1943	-26	-11			-10	13.6
P. E. I.	Charlottetown.....	186 ^c	Up to 1943	-27	-13			-10	9.8
Que.	Montreal.....	187 ^c	Up to 1943	-29	-18			-15	11.3
	Quebec.....	296 ^c	Up to 1943	-34	-23			-20	13.3
Sask.	Prince Albert.....	1414 ^c	Up to 1943	-70	-47			-45	5.1
Y. T.	Dawson.....	1062 ^c	Up to 1943	-68	-54			-45	3.7
Newf.	St. John's.....	428 ^c	Up to 1943	-21	-5			-10	12

^aUnited States Data compiled from U. S. Weather Bureau Records for years indicated, and Canadian data from Meteorological Service of Canada corrected to 1946.

^bCol. 2. The stations followed by letters AP are airport stations, all others are city office stations and are followed by letters CO.

^cCol. 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.

^dCol. 4. The periods of record indicated apply only to the lowest temperature ever recorded shown in Col. 5, and generally extend from a summer month of the first year indicated through the spring months of the last year indicated. The periods marked by d terminated in December of the year indicated.

^eAverage of readings of one lowest temperature obtained for each year.

^fIt should be noted that Col. 7 applies only to airports, as these data for city stations are not available at this time. The temperature shown is the minimum hourly out-door temperature which has been equalled or exceeded 97½ per cent of the total hours in December, January and February for the period of record. It is pointed out that in most cases the airport stations are outside of the city and these data would apply primarily to rural areas.

⁴Col. 8 indicates the average wind velocity which occurred at temperatures the same as, and lower, than the temperatures shown in Col. 7.

⁵Col. 9 records design temperatures in use by A.S.H.V.E. Members as reported by Chapter Secretaries for the various stations. Where these were not available the design temperatures from an ACRMA publication and various other sources have been inserted.

¹The wind velocities indicated in Col. 10 are repeated from the 1947 Guide with a few additions and corrections where other weather data have been made available.

²The bulletin published by A.S.H.V.E. for annual weather data of Detroit indicates 6 as design temperature.

with the use to which the building is to be put and Table 2 presents values which conform to good practice.

The proper dry-bulb temperature to be maintained depends upon the relative humidity and air motion, as explained in Chapter 12. In other words, a person may feel warm or cool at the same dry-bulb temperature, depending on the relative humidity and air motion. The optimum winter *effective temperature* for sedentary persons, as determined at the A.S.H.V.E. Research Laboratory, is 66 deg.

As explained in Chapter 12 for so-called still air conditions, a relative humidity of approximately 50 per cent is required to produce an effective temperature of 66 deg when the dry-bulb temperature is 70 F. However, even where provision is made for artificial humidification, the relative

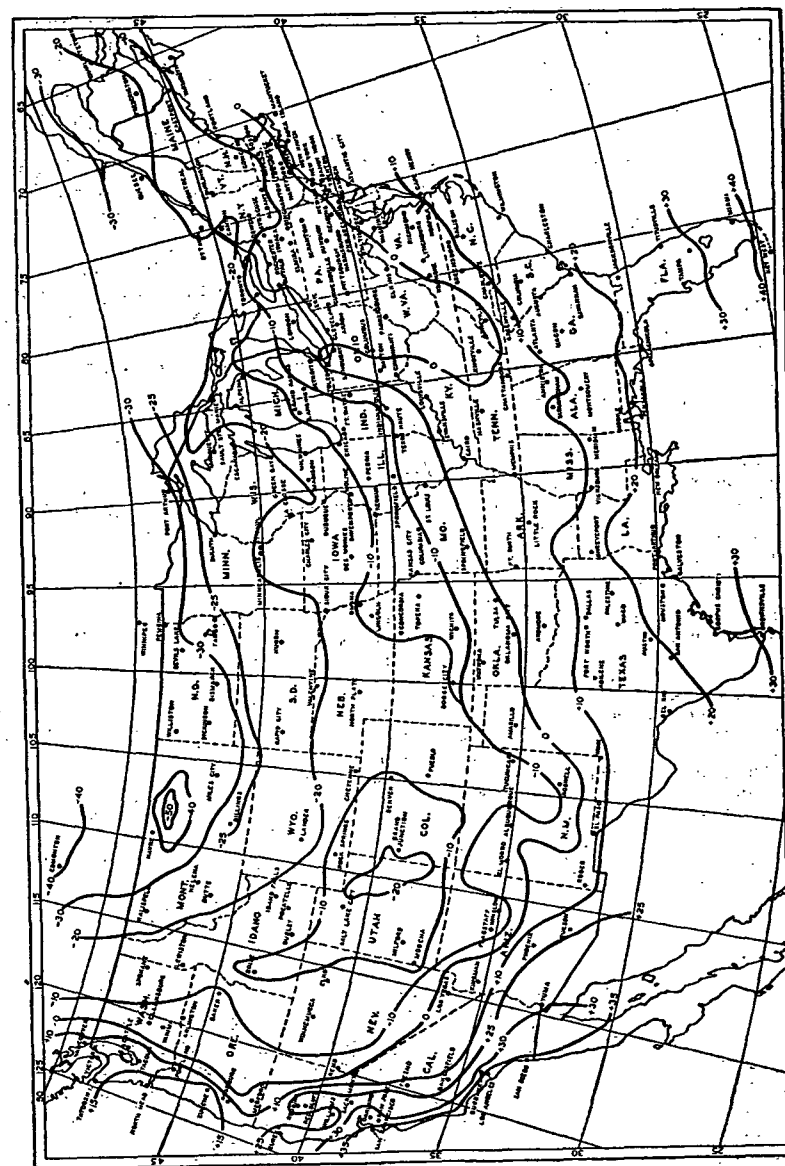


FIG. 1. ISOOTHERMS OF WINTER OUTDOOR DESIGN TEMPERATURE

humidity is seldom maintained higher than 40 per cent during the extremely cold weather, and where no provision is made for humidification, the relative humidity may be 20 per cent or less. Consequently, in using the figures listed in Table 2, consideration should be given to the actual relative humidity to be maintained if provision is to be made for humidification.