TABLE 1. INSIDE TEMPERATURES USUALLY SPECIFIED

Type of Building	Deg. Temp.		Deg. Temp.
Warm Air Baths	120	Residences	70
Steam Baths	110	Schools	70
Hospital Operating Room	85	Factories	65
Bath Rooms	85	Stores	65
Paint Shops	80	Gymnasium	55 to 60
Hospitals	72 to 75	Machine Shops	60 to 65
Public Buildings	68 to 72	Foundries, Boiler Shops, etc	50 to 60

In making the actual heat loss computations, however, for the various rooms in a building it is often necessary to modify the temperatures given in Table 1 so that the air temperature at the proper level will be used. By "air temperature at the proper level" is meant, in the case of walls, the air temperature at the mean height between floor and ceiling; in the case of glass, the air temperature at the mean height of the glass, in the case of roof or ceiling, the air temperature at the mean height of the roof or ceiling above the floor of the heated room, and in the case of floors, the air temperature at the floor level. In the case of heated spaces adjacent to unheated (no heat of any kind) spaces, it will usually be sufficient to assume the temperature in such spaces as the mean between the temperature of the inside heated space and the outside air temperature.

The air temperature at the mean height between floor and ceiling is the "breathing line" temperature, Table 1, for rooms not over 10 ft. in height. For rooms above this height, add 2 per cent per foot of height to the breathing-line temperature for each foot or fraction of a foot difference between the mean height of the vertical wall glass roof or ceiling surface, and the height of the breathing line.

In determining mean air temperatures just above floors which are next to ground or unheated spaces, a temperature 5 deg. lower than breathing-line temperature may be used, provided breathing-line temperature is not less than 55 deg. fahr.

OUTSIDE TEMPERATURE

The outside air temperature used in computing the heat loss from a building is seldom taken as the lowest temperature ever recorded in a given locality. Such temperatures are usually of short duration and are rarely repeated in successive years. It is therefore evident that a temperature somewhat higher than the lowest on record may be properly assumed in making the heat loss computations.

The outside temperature to be assumed in the design of any heating system must not be more than 15[1] deg. fahr. above the lowest recorded temperature as reported by the U. S. Weather Bureau (Table 2) during the preceding 10 years for the locality in which the heating system is

[1]There seems to be no agreement in this country at present as to the method of arriving at the proper outside temperature to be used in the calculations or design of a heating system. Some offices use the average of the lowest yearly temperatures for the preceding ten years. The *Heating and Piping Contractors' National Association* in their Code arrive at the assumed outside temperature to be used in the design by including a factor for wind movement as recorded for the locality in question. Thus, of two localities with the same minimum recorded outside temperature, the locality having the higher wind velocity would be assigned a lower outside air temperature for the calculation or design of a heating system than the other locality. However, since the effect of wind movement is actually reflected only in the heat transmission coefficients of wall, roof or glass, and in the inleakage (infiltration) of cold air at the cracks around outside windows and doors, its effect should be applied to the transmission and infiltration coefficients and not to the outside air temperature. In this chapter, the practice of correcting transmission and infiltration coefficients for unusual wind movement is followed and the method discussed in detail.

to be installed. The outside temperature assumed and used in the design should always be stated in the heating specifications.

TABLE 2. CLIMATIC CONDITIONS COMPILED FROM U. S. WEATHER BUREAU RECORDS

Col. A	Col. B	Col. C	Col. D	Col. E	Col. F
State	City	Average Temp., Oct. 1st–May 1st	Lowest Temperature	Average Wind Velocity Dec., Jan., Feb., Miles per Hr.	Direction of Prevailing Wind, Dec., Jan., Feb.
Ala.	Mobile	57.7	−1	8.3	N
	Birmingham	53.9	−10	8.6	N
Ariz.	Phoenix	59.5	16	3.9	E
	Flagstaff	34.9	−25	6.7	SW
Ark.	Fort Smith	49.5	−15	8.0	E
	Little Rock	51.6	−12	9.9	NW
Cal.	San Francisco	54.3	29	.....	N
	Los Angeles	58.6	28	.....	NE
Colo.	Denver	39.3	−29	7.4	S
	Grand Junction	39.2	−16	5.6	SE
Conn.	New Haven	38.0	−14	9.3	N
D. C.	Washington	43.2	−15	7.3	NW
Fla.	Jacksonville	61.9	10	8.2	NE
Ga.	Atlanta	51.4	−8	11.8	NW
	Savannah	58.4	8	8.3	NW
Idaho	Lewiston	42.5	−13	4.7	E
	Pocatello	36.4	−20	9.3	SE
Ill.	Chicago	36.4	−23	17.0	SW
	Springfield	39.9	−24	10.2	NW
Ind.	Indianapolis	40.2	−25	11.8	S
	Evansville	44.1	−15	8.4	S
Iowa	Dubuque	33.9	−32	6.1	NW
	Sioux City	32.1	−35	12.2	NW
Kans.	Concordia	38.9	−25	7.3	N
	Dodge City	40.2	−26	10.4	NW
Ky.	Louisville	45.2	−20	9.3	SW
La.	New Orleans	61.5	7	9.6	N
	Shreveport	56.2	−5	7.7	SE
Me.	Eastport	31.1	−23	13.8	W
	Portland	33.6	−17	10.1	NW
Md.	Baltimore	43.6	−7	7.2	NW
Mass.	Boston	37.6	−13	11.7	W
Mich.	Alpena	29.1	−27	11.3	W
	Detroit	35.4	−24	13.1	SW
	Marquette	27.6	−27	11.4	NW
Minn.	Duluth	25.1	−41	11.1	SW
	Minneapolis	29.6	−33	11.5	NW
Miss.	Vicksburg	56.0	−1	7.6	SE
Mo.	St. Joseph	40.3	−24	9.1	NW
	St. Louis	43.3	−22	11.8	NW
	Springfield	43.0	−29	11.3	SE
Mont.	Billings	34.7	−49	.....	W
	Havre	27.7	−57	8.7	SW
Nebr.	Lincoln	37.0	−29	10.9	N
	North Platte	34.6	−35	9.0	W
Nev.	Tonopah	39.6	−7	9.9	SE
	Winnemucca	37.9	−28	9.5	NE
N. H.	Concord	33.4	−35	6.0	NW
N. J.	Atlantic City	41.6	−7	10.6	NW
N. Y.	Albany	35.1	−24	7.9	S
	Buffalo	34.7	−14	17.7	W
	New York	40.3	−6	13.3	NW
N. M.	Santa Fe	38.0	−13	7.3	NE