

TABLE 1. INSIDE TEMPERATURES USUALLY SPECIFIED

TYPE OF BUILDING	DEG. FAHR.
SCHOOLS—	
Class Rooms.....	68
Assembly Rooms.....	66-68
Gymnasiums.....	55-65
Toilets and Baths.....	70
Wardrobe and Locker Rooms.....	65-68
Kitchens.....	66
Dining and Lunch Rooms.....	65-68
Playrooms.....	60-65
Natoriums.....	75
THEATERS—	
Seating Space.....	68-72
Lounge Rooms.....	68
Toilets.....	68
HOSPITALS—	
Private Rooms.....	70
Private Rooms (surgical).....	70-80
Operating Rooms.....	70-95
Wards.....	68
Kitchens and Laundries.....	66
Toilets.....	68
Bathrooms.....	70-80
HOTELS—	
Bedrooms and Baths.....	70
Dining Rooms.....	70
Kitchens and Laundries.....	66
Ball Rooms.....	65-68
Toilets and Service Rooms.....	68
HOMES—	
Where 68 deg. is generally the desirable standard of temperature a guarantee of 70 deg. is customarily exacted.	
STORES.....	65-68
PUBLIC BUILDINGS.....	68-70
WARM AIR BATHS.....	120
STEAM BATHS.....	110
FACTORIES AND MACHINE SHOPS.....	60-65
FOUNDRIES AND BOILER SHOPS.....	50-60
PAINT SHOPS.....	- 80

TABLE 2. DESIRABLE INDOOR TEMPERATURES IN SUMMER CORRESPONDING TO OUTDOOR TEMPERATURES

DEGREES OUTSIDE	DEGREES INSIDE		
	Dry Bulb	Wet Bulb	Effective Temperature
95	80.0	65.2	73.4
90	78.0	64.5	72.2
85	76.5	64.0	71.1
80	75.0	63.5	70.2
75	73.5	63.0	69.3
70	72.0	62.5	68.2

air temperature, and direction and velocity of air discharge. In some cases it has been possible to reduce the temperature between the floor and ceiling to a few degrees, whereas, in other cases, the temperature at the ceiling has actually been increased because of improper design, installation or operation of equipment. So much depends upon the factors enumerated, that it is not advisable to allow less than 1 per cent per foot (and usually more) above the breathing line in arriving at the air temperature at any given level for any of these types of heating and ventilating systems, unless the manufacturers are willing to guarantee that the particular type of equipment under consideration will maintain a smaller temperature differential for the specific conditions involved.

Rietschel's Formula: Rietschel states that the average mean temperature t_m never exceeds $1.15 t$ for the highest ceilings. His formula is:

$$t_m = t [1 + 0.017 (h - 10)]$$

in which h is the height of the ceiling or outside walls. Substituting $t_m = 1.15 t$, it is found that $h = 19$ ft., so that for heights over 19 ft. a value of $t_m = 1.15 t$ may be used.

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

Summer

Where buildings are being artificially cooled for human comfort during the summer a different scale of inside temperatures is required and this inside temperature must depend to a large extent upon the variation in outside temperatures. It is manifestly undesirable and impracticable to maintain a temperature of 70 deg. inside when it is 95 deg. outside, nor can it be said that the inside temperature should be as much as 15 deg. below the outside temperature. At 95 deg. outside, and dry air, a temperature somewhat lower than 80 deg. might be desirable. On the other hand with 85 deg. outside a 70-deg. temperature inside would be entirely too cold. In other words, the spread between the inside and outside temperature must be varied as the outside temperature varies.

Table 2 is based on average moisture conditions outside and upon the assumption of relative humidities inside, between 50 and 60 per cent, which is usual in such installations.

OUTSIDE TEMPERATURES

Winter

The outside 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 deg. fahr. above the lowest recorded temperature as reported by the Weather Bureau (Table 3) during the