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
Natatoriums	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 F is generally the desirable standard of temperature a guarantee of 70 F 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	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

2. Determine on an outside air temperature for design purposes, based on the minimum temperatures recorded in the locality in question, which will provide for all but the most severe weather conditions. Such conditions as may exist for only a few consecutive hours are readily taken care of by the heat capacity of the building itself. (See Table 3, p. 14).

3. Select or compute the heat transmission coefficients for outside walls and glass, also for inside walls, floors, or top-floor ceilings, if these are next to unheated space; include roof if next to heated space. (See Chapter 3).

4. Measure up net outside wall, glass and roof next to heated spaces, as well as any cold walls, floors or ceilings next to unheated space. Such measurements are made from building plans, or from the actual building.

5. Compute the heat transmission losses for each kind of wall, glass, floor, ceiling and roof in the building by multiplying the heat transmission coefficient in each case by the area of the surface in square feet and the temperature difference between the inside and outside air. (See pars. 1 and 2).

6. Select unit values and compute the heat equivalent of the infiltration of cold air taking place around outside doors and windows. These unit values depend on the kind or width of crack and wind velocity and when multiplied by the length of crack and the temperature difference between the inside and outside air, the result expresses the heat required to warm up the cold air leaking into the building per hour. (See Chapter 4).

7. The sum of the heat losses by transmission (par. 5) through the outside wall and glass, as well as through any cold floors, ceilings or roof, and the heat equivalent (par. 6) of the cold air entering by infiltration represents the total heat loss equivalent for any building.

Item 7 represents the heat losses after the building is heated and under stable operating conditions in coldest weather. Additional heat is required for raising the temperature of the air, the building materials and the material contents of the building to specified standard inside temperature.

The rate at which this additional heat is required depends upon the heat capacity of the structure and its material contents and upon the time in which these are to be heated.

This additional heat may be figured and allowed for as conditions require, but inasmuch as the heating system proportioned for taking care of the heat losses will usually have a capacity about 100 per cent greater than that required for average winter weather, and inasmuch as most buildings may either be continuously heated or more time be allowed for heating-up, during the few minimum temperature days, no allowance is made except in the size of boilers or furnaces.

INSIDE TEMPERATURES

Winter

The inside air temperature which must be maintained within a building and which should always be stated in the heating specifications, is understood to be the temperature at the breathing line, 5 ft above the floor and not less than 3 ft from the outside walls. Inside air temperatures, usually specified, vary in accordance with the use to which the building is to be put and Table 1 presents values which are in conformity with good practice.

Effect of Humidification: In connection with inside temperatures for winter where humidifying means are provided, approximately 1 deg variation for each 10 per cent variation in relative humidity should be provided. For example: If the relative humidity is raised from a condition of 15 per cent to one of 45 per cent by artificial humidification it is desirable