

avoided for obvious reasons. Tables 4 and 5 give the approximate effective temperatures at which perspiration is noticeable in different degrees for 95 per cent and 20 per cent relative humidity.

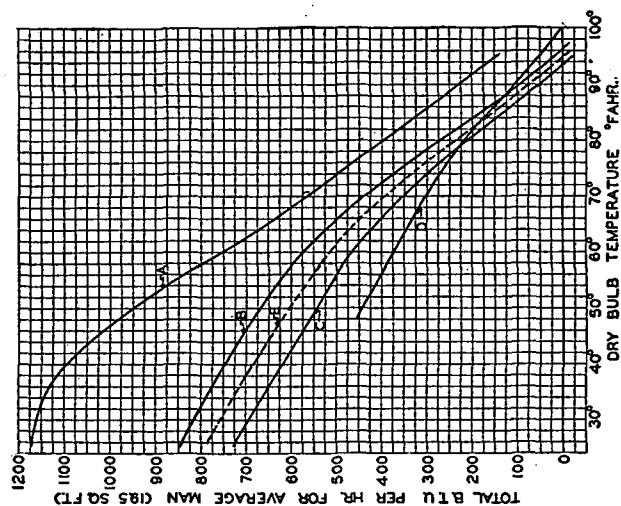


FIG. 5. RELATION BETWEEN SENSIBLE HEAT LOSS FROM THE HUMAN BODY AND DRY-BULB TEMPERATURE FOR STILL AIR^a

^aCurve A—Men working 66,150 ft.-lb. per hour. Curve B—Men working 33,075 ft.-lb. per hour. Curve C—Men working 16,538 ft.-lb. per hour. Curve D—Men seated at rest. Curves A and C drawn from data at a dry-bulb temperature of 81.3 F only and extrapolating the relation between curves B and D which were drawn from data at many temperatures.

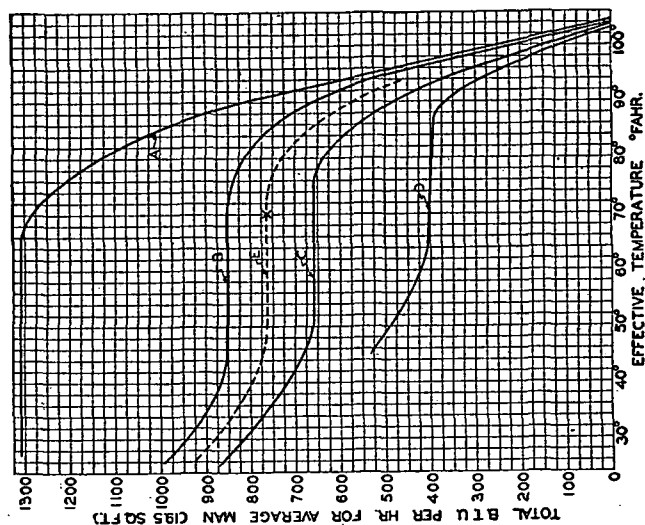


FIG. 4. RELATION BETWEEN TOTAL HEAT LOSS FROM THE HUMAN BODY AND EFFECTIVE TEMPERATURE FOR STILL AIR^a

^aCurve A—Men working 66,160 ft.-lb. per hour. Curve B—Men working 33,075 ft.-lb. per hour. Curve C—Men working 16,538 ft.-lb. per hour. Curve D—Men seated at rest. Curve A and C drawn from data at an effective temperature of 70 deg only and extrapolating the relation between curves B and D, which were drawn from data at many temperatures.

In theaters, auditoriums, department stores and other crowded enclosures, the amount of heat and moisture given off by the people is so large that normal changes in outside temperature and humidity have relatively little effect on indoor air conditions. The principal object of air

conditioning in such places is to remove excessive heat and moisture by supplying a sufficient quantity of properly conditioned air. The indoor air conditions, however, must be varied according to the outside temperature, as already pointed out.

Although heat and moisture from the human body constitute the major

TABLE 4. CONDITION OF SENSIBLE PERSPIRATION FOR PERSONS SEATED AT REST UNDER VARIOUS ATMOSPHERIC CONDITIONS³⁵

DEGREE OF PERSPIRATION ^a	ATMOSPHERIC CONDITION					
	95 Per Cent Relative Humidity			20 Per Cent Relative Humidity		
	E. T.	D. B.	W. B.	E. T.	D. B.	W. B.
Forehead clammy.....	73.0	73.6	72.4	75.0	87.0	60.7
Body clammy.....	73.0	73.6	72.4	75.0	87.0	60.7
Body damp.....	79.0	79.7	78.4	81.0	97.5	67.5
Beads on forehead.....	80.0	80.8	79.4	87.0	109.4	75.2
Body wet.....	84.5	85.4	84.0	86.5	108.5	74.6
Perspiration on forehead runs and drips.....	88.0	89.0	87.6	94.0	125.2	85.4
Perspiration runs down body.....	88.5	89.5	88.1	90.0	116.0	79.5

^aForty per cent of subjects registered degree of perspiration equal to or greater than indicated.

portion of the cooling load, in most cases where air conditioning is provided for comfort and health other factors must also be considered. These include heat from lights, machinery, and processes, as well as the transmission and infiltration of heat through the building structure. The computations for these factors may be made in accordance with data given in Chapters 5 and 7.

In many cases, allowance must also be made for sun effect and for heat capacity of the building structure in accordance with studies by the

TABLE 5. CONDITION OF SENSIBLE PERSPIRATION FOR PERSONS AT WORK UNDER VARIOUS ATMOSPHERIC CONDITIONS

DEGREE OF PERSPIRATION ^a	ATMOSPHERIC CONDITION					
	95 Per Cent Relative Humidity			20 Per Cent Relative Humidity		
	E. T.	D. B.	W. B.	E. T.	D. B.	W. B.
Forehead clammy.....	59.0	59.4	58.3	69.5	80.5	56.5
Body clammy.....	50.0	50.2	49.3	57.0	61.6	44.2
Body damp.....	60.0	60.3	59.3	62.5	69.6	49.5
Beads on forehead.....	68.0	68.5	67.5	76.0	91.0	63.4
Body wet.....	69.0	69.6	68.5	71.0	82.8	53.0
Perspiration on forehead runs and drips.....	78.5	79.3	78.0	82.0	100.5	70.2
Perspiration runs down body.....	79.0	79.8	78.5	81.0	99.8	69.0

^aForty per cent of subjects registered degree of perspiration equal to or greater than indicated.

³⁵Thermal Exchanges between the Human Body and its Atmospheric Environment, by F. C. Houghten, W. W. Teague, W. E. Miller, W. P. Yant (*American Journal Physiology*, Vol. 88, No. 3, April, 1929, pp. 386-406).