

There are three principal factors affecting loss of body heat: (1) temperature; (2) humidity; (3) air motion.

As the temperature of the air and surrounding objects rises, the loss of heat by convection and radiation decreases. When the air temperature

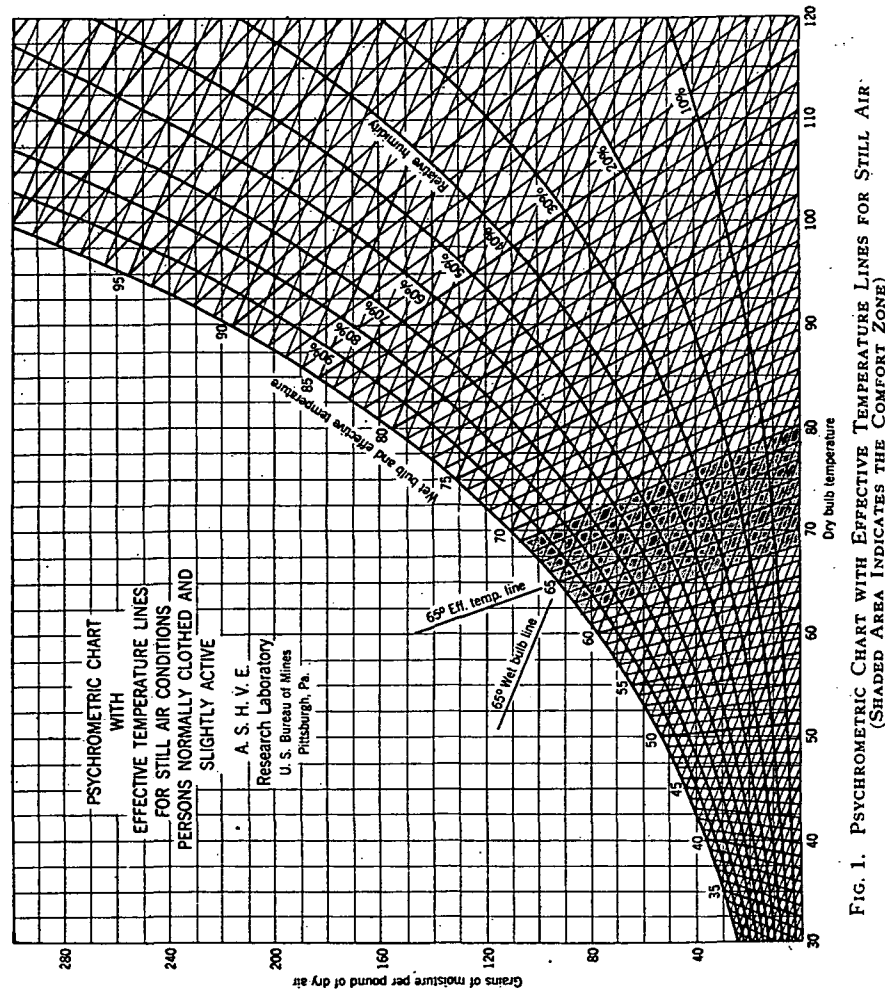


FIG. 1. PSYCHROMETRIC CHART WITH EFFECTIVE TEMPERATURE LINES FOR STILL AIR. (SHADED AREA INDICATES THE COMFORT ZONE)

reaches that of the body, the loss by radiation and convection ceases. Finally, as the air temperature exceeds that of the body, heat is transferred from the air to the body.

As the temperature of the air rises and heat loss by radiation and convection decreases, the body endeavors to maintain temperature equi-

librium by making available more perspiration, resulting in a greater heat loss by evaporation.

From the foregoing, it is concluded that there must necessarily exist certain combinations of temperatures and humidities, which produce the same total body heat loss by radiation, convection, and evaporation,

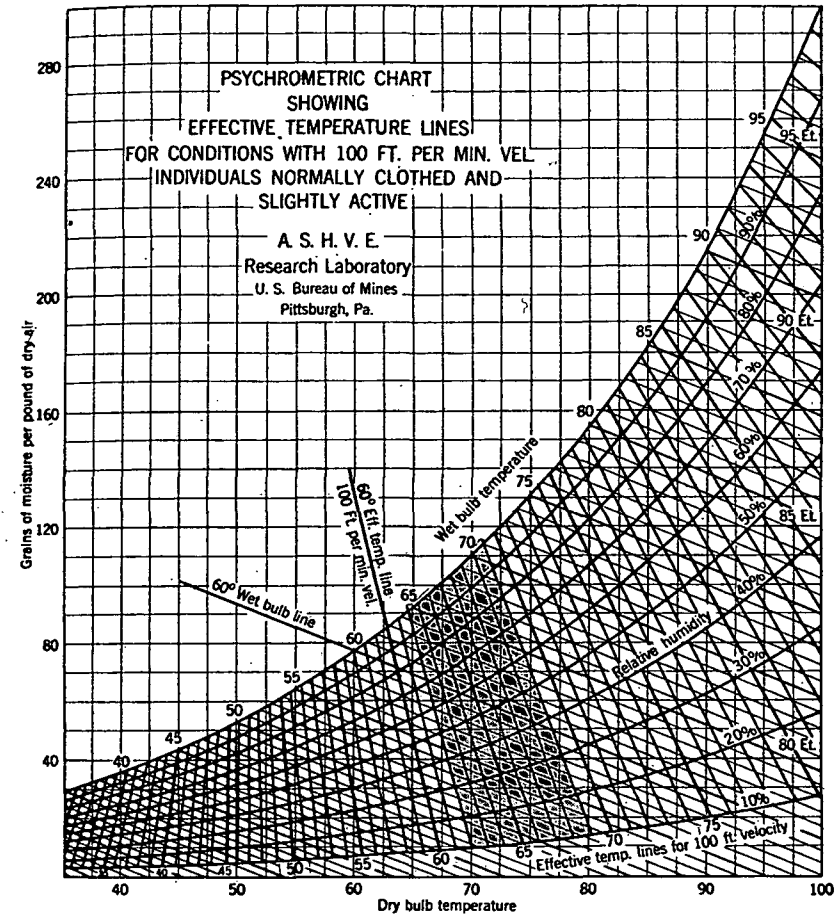


FIG. 2. PSYCHROMETRIC CHART WITH EFFECTIVE TEMPERATURE LINES FOR 100 FT. AIR VELOCITY. (SHADED AREA INDICATES THE COMFORT ZONE)

and, therefore, the same feeling of comfort or discomfort. Lines passing through such air conditions plotted as a psychrometric chart may be called equal comfort lines. The fact is further substantiated by the general experience of heating engineers in observing that the lower the humidity the higher the dry-bulb temperature required for the same degree of comfort.