

LETTER SYMBOLS USED IN CHAPTER 15

- β = solar altitude, degrees.
 γ = difference between the azimuth angle of an outdoor wall and the azimuth angle of the horizontal projection of the sun's rays, degrees.
 ϵ = surface emissivity, the ratio of the heat emission by radiation from a surface to the radiation from a perfectly black surface, dimensionless.
 λ = amplitude decrement factor, a variable depending on thickness, material, and orientation of the wall or roof dimensionless.
 θ = angle of incidence for sun's rays striking a surface, degrees.
 τ = fraction of incident radiant energy transmitted through a glass section, dimensionless.
 A = area across which heat is being transferred, square feet.
 a = fraction of incident radiant energy absorbed within a glass section, dimensionless.
 b = fraction of incident radiant energy absorbed by a non-transparent surface, dimensionless.
 c = ratio of direct solar radiation to sky radiation falling on a horizontal surface, dimensionless.
 f_o = unit convective conductance for outdoor surface = film coefficient of heat transfer of outdoor air, Btu per (square foot) (hour) (Fahrenheit degree).
 G_t = fraction of total window area receiving direct solar radiation when shaded by window reveal, dimensionless.
 h_i = enthalpy of indoor air per pound of dry air, Btu per pound.
 h_o = enthalpy of outdoor air per pound of dry air, Btu per pound.
 I_d = direct solar radiation incident upon a surface at any angle of incidence, Btu per (square foot) (hour).
 I_n = direct solar radiation incident on a surface at normal incidence, Btu per (square foot) (hour).
 I_s = sky radiation incident upon a surface, Btu per (square foot) (hour).
 $I_t = I_s + I_d$, Btu per (square foot) (hour).
 K = cosine of angle of incidence for direct solar radiation striking a surface, dimensionless.
 k = thermal conductivity of building material, Btu per (square foot) (hour) (Fahrenheit degree per foot).
 L = thickness of building material, feet.
 l = height of window, feet.
 P_d = partial pressure of atmospheric water vapor at earth's surface, inches of mercury.
 Q = rate of entry of outdoor air, cubic feet per minute.
 Q_{ra} = required air quantity through conditioning equipment, cubic feet per minute.
 q = instantaneous rate of heat transfer, Btu per hour.
 q_e = instantaneous latent heat load, Btu per hour.
 q_s = instantaneous sensible heat load, Btu per hour.
 $q_t = q_e + q_s$, Btu per hour.
 q_w = specific enthalpy of water vapor removed (used on Mollier diagram) Btu per pound.
 r = fraction of incident radiation reflected from glass surface, dimensionless.
 T = absolute temperature, (F deg $\pm$ 460).
 t_e = sol-air temperature, Fahrenheit degrees.
 t_e^* = sol-air temperature at a time earlier than the time for which heat gain is being found by an amount that is equal to the time lag of the wall or roof, Fahrenheit degrees.
 t_i = indoor air temperature, Fahrenheit degrees.
 t_o = temperature of outer surface of building, Fahrenheit degrees.
 t_m = 24-hr cyclic average sol-air temperature, Fahrenheit degrees.
 $t_p = t_m + (t_e^* - t_m)$, net equivalent outdoor temperature for combined periodic and mean heat flow, Fahrenheit degrees.

- U = over-all coefficient of heat transfer of a structural section, Btu per (square foot) (hour) (Fahrenheit degree).
 v_o = volume of outdoor air per pound of dry air, cubic feet.
 w = width of window, feet.
 W_i = humidity ratio of indoor air, pounds moisture per pound of dry air.
 W_o = humidity ratio of outdoor air, pounds moisture per pound of dry air.

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