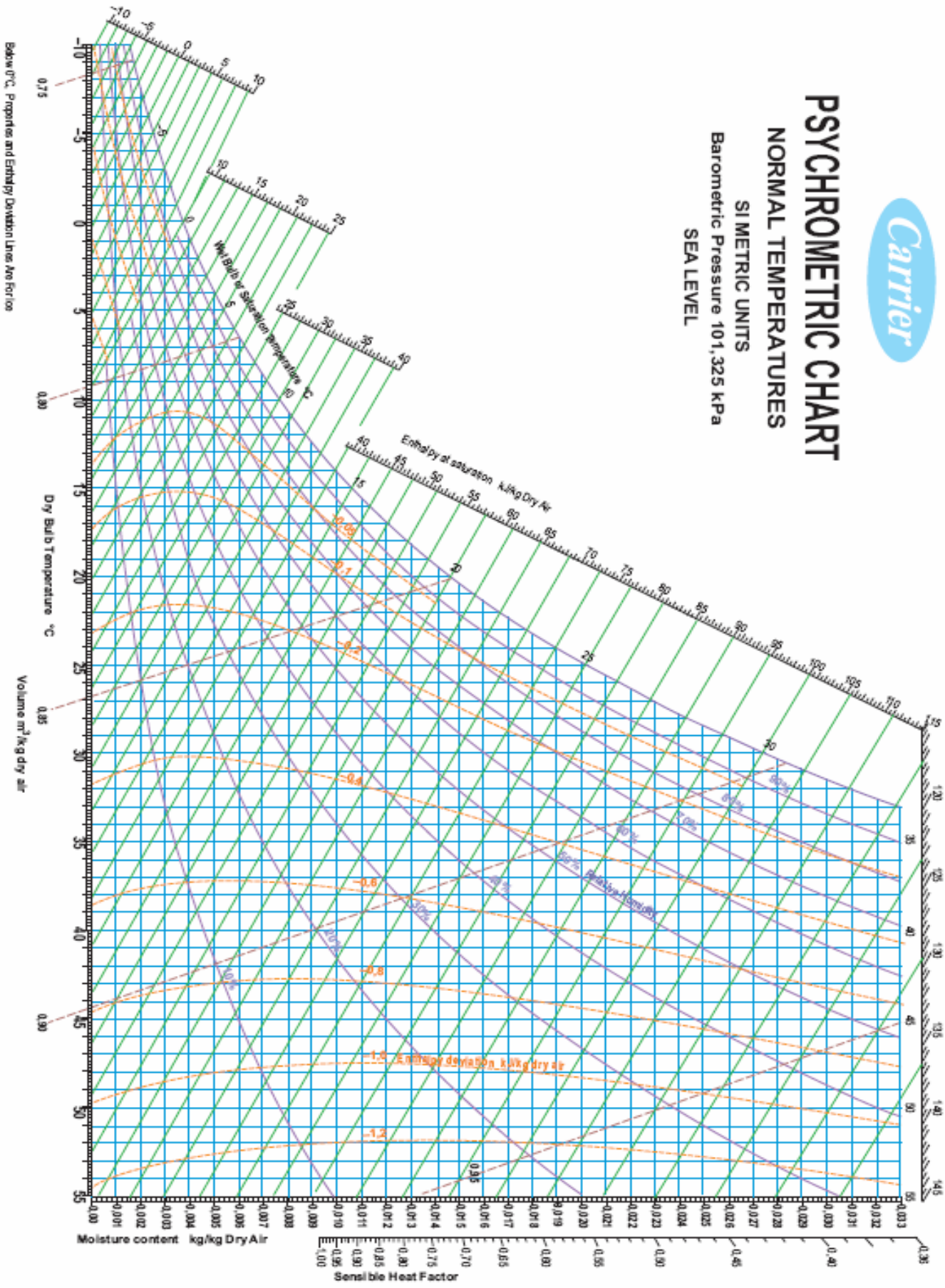
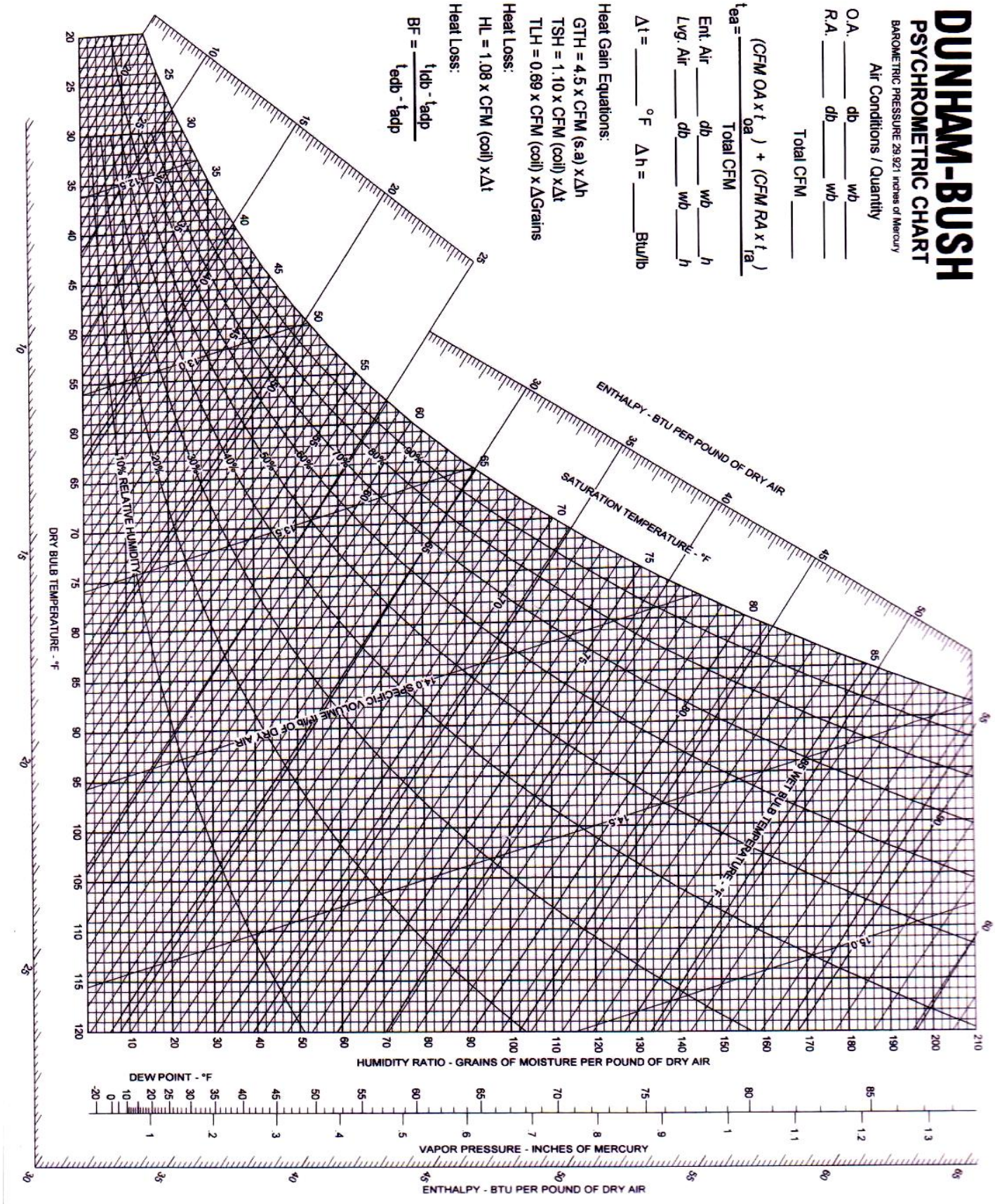
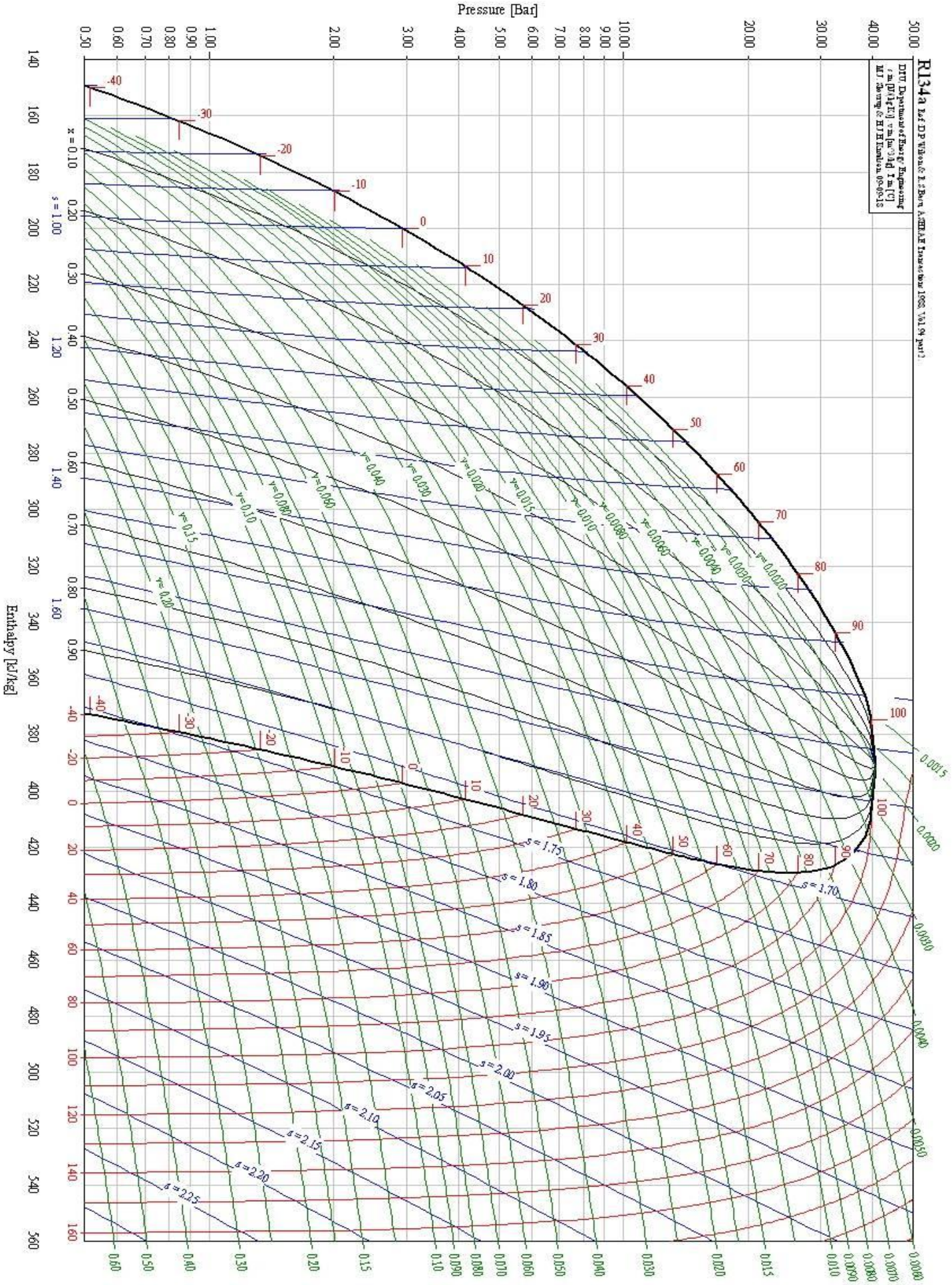
APPENDIX


PSYCHROMETRIC CHART
NORMAL TEMPERATURES
SI METRIC UNITS
Barometric Pressure 101,325 kPa
SEA LEVEL
Carrier
Below 0°C, Properties and Enthalpy Deviation Lines Are For Ice
Wet Bulb or Saturation Temperature °C
Enthalpy at saturation kJ/kg Dry Air
Dry Bulb Temperature °C
Volume m³/kg dry air
Moisture content kg/kg Dry Air
Sensible Heat Factor
Enthalpy deviation kJ/kg dry air


DUNHAM-BUSH
PSYCHROMETRIC CHART
BAROMETRIC PRESSURE 29.921 inches of Mercury
Air Conditions / Quantity
O.A. _____ db _____ wb _____
R.A. _____ db _____ wb _____
Total CFM _____
$t_{ea} = \frac{(CFM\ OA \times t_{oa}) + (CFM\ RA \times t_{ra})}{Total\ CFM}$
Ent. Air _____ db _____ wb _____ h
Lvg. Air _____ db _____ wb _____ h
Δt = _____ °F Δh = _____ Btu/lb
Heat Gain Equations:
GTH = 4.5 x CFM (s.a) x Δh
TSH = 1.10 x CFM (coil) x Δt
TLH = 0.69 x CFM (coil) x ΔGrains
Heat Loss:
HL = 1.08 x CFM (coil) x Δt
Heat Loss:
$BF = \frac{t_{idb} - t_{adp}}{t_{edb} - t_{adp}}$
DRY BULB TEMPERATURE - °F
ENTHALPY - BTU PER POUND OF DRY AIR
SATURATION TEMPERATURE - °F
WET BULB TEMPERATURE - °F
HUMIDITY RATIO - GRAINS OF MOISTURE PER POUND OF DRY AIR
DEW POINT - °F
VAPOR PRESSURE - INCHES OF MERCURY
ENTHALPY - BTU PER POUND OF DRY AIR
10% RELATIVE HUMIDITY
14.0 SPECIFIC VOLUME FEET OF DRY AIR

Appendix 3



FORMULA

Mollier chart

a. Compression ratio
= High pressure / Low pressure

b. Flash gas
= (h4 – h4') / (h1 – h4')

c. Refrigerant effect
= (h1 – h4)

d. Circulation rate of refrigerant
= refrigerating capacity / refrigerant effect

e. Power at compressor
= circulation rate x (h2 - h1)

f. COP = Refrigerating capacity / Power at compressor
or
= (h1 – h4) / (h2 – h1)

g. Volume at Compressor
$Q_V = m \times S_p$ volume

Psychrometric chart

U.S Units

a. Volume flow rate = Area x Velocity
= cfm (Cubic ft minute)

b. Area = Length x Wide

= sq ft

c. Q sensible = 1.08 x cfm x Δt

d. Q latent = 0.68 x cfm x Δw

e. Q total = Q sensible + Q latent

Metrics Units

a. Mass flow rate, m = (Volume flow) / (specific volume)
m = kg/s

b. The rate of heat transfer(kW)
Q = mass (kg/s) x delta enthalpy (kJ/kg)
$= m \times (h_{entering} - h_{exiting})$
$(Q_{cooling\ coil} = Q_{refrigeration\ cycle})$