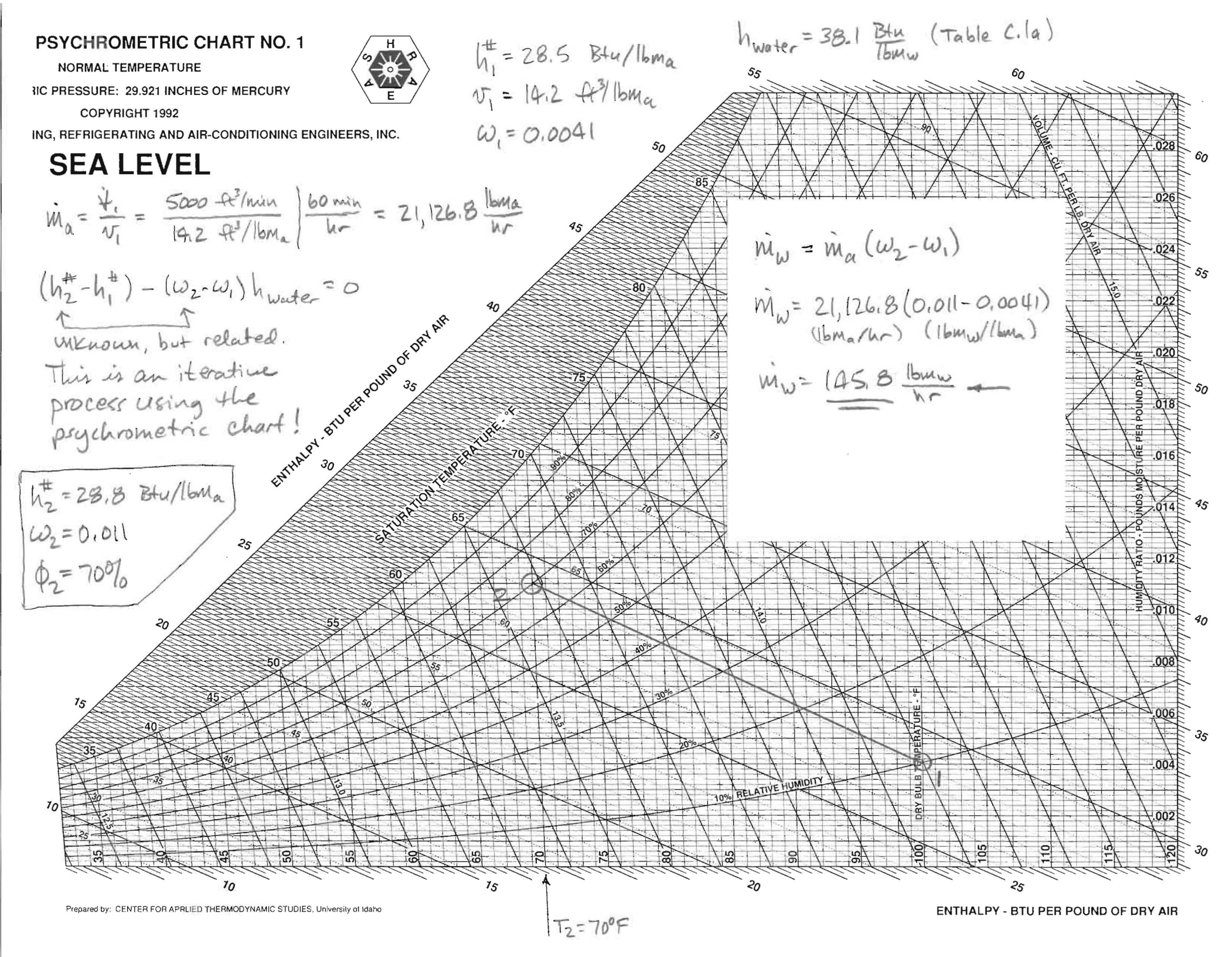
PSYCHROMETRIC CHART NO. 1
NORMAL TEMPERATURE
IC PRESSURE: 29.921 INCHES OF MERCURY
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ING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.
SEA LEVEL
$h_{water} = 38.1 \frac{Btu}{lbm_w}$ (Table C.1a)
$h_1^{\#} = 28.5$ Btu/lbma
$v_1 = 14.2$ ft³/lbma
$\omega_1 = 0.0041$
$\dot{m}_a = \frac{\dot{v}_1}{v_1} = \frac{5000 \text{ ft}^3/\text{min}}{14.2 \text{ ft}^3/\text{lbm}_a} \left| \frac{60 \text{ min}}{\text{hr}} \right. = 21{,}126.8 \frac{\text{lbm}_a}{\text{hr}}$
$(h_2^{\#} - h_1^{\#}) - (\omega_2 - \omega_1) h_{water} = 0$
unknown, but related.
This is an iterative process using the psychrometric chart!
$h_2^{\#} = 28.8$ Btu/lbma
$\omega_2 = 0.011$
$\phi_2 = 70\%$
$\dot{m}_w = \dot{m}_a (\omega_2 - \omega_1)$
$\dot{m}_w = 21{,}126.8 (0.011 - 0.0041)$
(lbma/hr) (lbmw/lbma)
$\dot{m}_w = 145.8 \frac{\text{lbm}_w}{\text{hr}}$
ENTHALPY - BTU PER POUND OF DRY AIR
SATURATION TEMPERATURE - °F
VOLUME - CU. FT. PER LB. DRY AIR
HUMIDITY RATIO - POUNDS MOISTURE PER POUND DRY AIR
DRY BULB TEMPERATURE - °F
10% RELATIVE HUMIDITY
$T_2 = 70°F$
Prepared by: CENTER FOR APPLIED THERMODYNAMIC STUDIES, University of Idaho
ENTHALPY - BTU PER POUND OF DRY AIR