ERRATA for

PE Mechanical Engineering: HVAC and Refrigeration Practice Exam

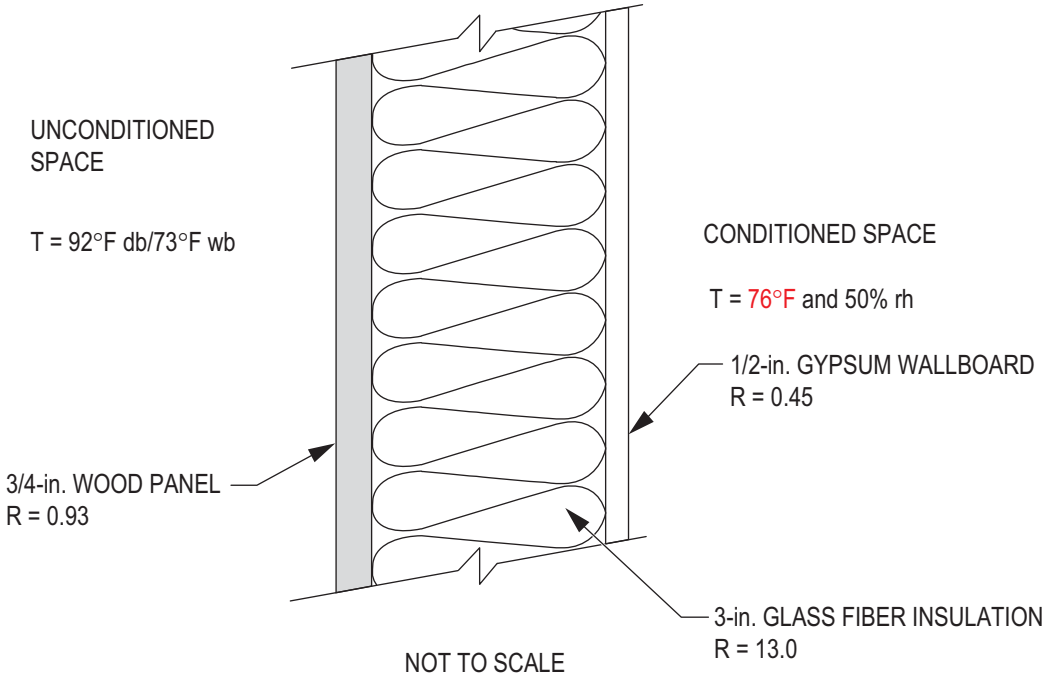
ISBN: 978-1-932613-76-6

Errata posted 3/31/2017

Revisions are shown in red.

Question 506, p. 40:

The figure should be shown as follows:



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Solution 110, p. 75:

The solution should read as follows:

Reference: 2013 *ASHRAE Handbook—Fundamentals*, Chapter 18

The sensible heat equation at standard air conditions (sea level and 59°F) is given by:

$$Q_s = \text{cfm} \times 1.10 \times \Delta T$$

This needs to be adjusted to allow for the change in air density from standard conditions (0.075 lb/ft^3) to the 5,000-ft elevation. On a psychrometric chart for 5,000 ft at a 55°F saturated supply air temperature, the specific volume of air is 15.8 ft^3/lb, which gives a density of 0.063 lb/ft^3.

The revised sensible heat equation becomes:

$$Q_s = \text{cfm} \times 1.10 \times (0.063/0.075) \times \Delta T$$

This becomes: $Q_s = \text{cfm} \times 0.92 \times \Delta T$

$$\text{cfm} = Q_s/(0.92 \times \Delta T)$$

$$\text{cfm} = \frac{23 \text{ tons} \times 12{,}000 \text{ Btu/hr/ton}}{0.92 \times (75 - 55)} = 15{,}000 \text{ cfm}$$

THE CORRECT ANSWER IS: (C)

Solution 509, p. 91:

Line 6 of the solution should read as follows:

$Q = 4.5 \times 112{,}250 \times (43.6 - 34.8) = 4{,}445{,}100$ Btu/hr

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Solution 529, p. 97:

The solution should read as follows:

$$Q_{evap} = \dot{m}\left(h_{out} - h_{in}\right)_{evap} = 23.2\,\text{tons}$$

Suction saturated vapor, $h_{out} = 106.2$ Btu/lb

Saturated liquid at discharge pressure, $h_{in} = 47.03$ Btu/lb

$$\therefore \dot{m} = \frac{23.2\,\text{tons}\left(200\,\frac{\text{Btu}}{\text{min-ton}}\right)}{(106.2 - 47.03)\,\text{Btu/lb}} = 78.4\ \text{lb/min}$$

THE CORRECT ANSWER IS: (B)

Revisions are shown in red.

Solution 530, p. 98:

Line 1 of the solution should read as follows:

$$\text{Refrigerant flow} = \frac{\text{tons} \times 12{,}000\ \text{Btu/hr/ton}}{(60\ \text{min/hr})(\Delta h, \text{Btu/lb})}$$

Previously posted errata continued on next page

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Errata posted 2/17/2017

p. 102:

The correct psychrometric chart is shown on the next page.

ASHRAE PSYCHROMETRIC CHART NO.1

NORMAL TEMPERATURE

BAROMETRIC PRESSURE: 29.921 INCHES OF MERCURY

SEA LEVEL