# Errata Sheet for *Indoor Air Quality Engineering* - R. J. Heinsohn and J. M. Cimbala

Latest update: 12-29-2020

This is a list of errors that have been found in the textbook. Please make the corrections in your book. Also, if you find an additional error in the book, please contact **John M. Cimbala** at **814-863-2739** or **jmc6@psu.edu** to report the error.

- Pg. 3, third line of second paragraph: Change "that that" to "that".
- Pg. 5, sixth line before Table 1.2: Change "4%" to "0.04%".
- Pg. 18, line 1 under equation: Change "83 mg/kg" to "83 μg".
- Pg. 28, first line, middle row of Table 1.7: Change "1.23 x 10^1" to "1.23 x 10^0".
- Pg. 28, 2nd line of Section 1.5.2: Change "6.0251" to "6.022".
- Pg. 27, 1st line: Change "6.0251" to "6.022".
- Pg. 38, last line of Example 1.6: Change "ht" in the denominator of the minutes-to-hours conversion factor to "hr".
- Pg. 46, first line of Example 1.9: Change "Eq. (1-58)" to "Eq. (1-59)".
- Pg. 50, seventh line from bottom: Change "**Resister**" to "**Register**".
- Pg. 78, fifth line of Problem 6: Change "one cigarette." to "one cigarette?".
- Pg. 128, sixth line from top: Change "there is no PEL for CO_2" to "it is not toxic". (Note that there *is* now a PEL for CO_2, and it is 5000 PPM, which leads to an oxygen mol fraction of 19.7% in this example.)
- Pg. 145, Table 2.10, line 3: Change "anthropods" to "arthropods".
- Pg. 153, third line from bottom (and affects the rest of the example problem): The PEL for acetone increased from "750 PPM" to "1000 PPM" since the time this example was written (see also Table A.1).
- Pg. 155, line just prior to Eq. (2-58): Change "**cellar response**" to "**cellular response**".
- Pg. 168, Problem 2, second line: Change "Figures 2.18 and 2.19" to "Figures 2.15 and 2.16".
- Pg. 177, second line of first bullet list item: Change "41.5" to "41.1".
- Pg. 177, Figure 3.1: The plot erroneously shows 9 hours of data (8:00 till 17:00). It should show only *8* hours of data (9:00 till 17:00). The corrected plot is shown below.
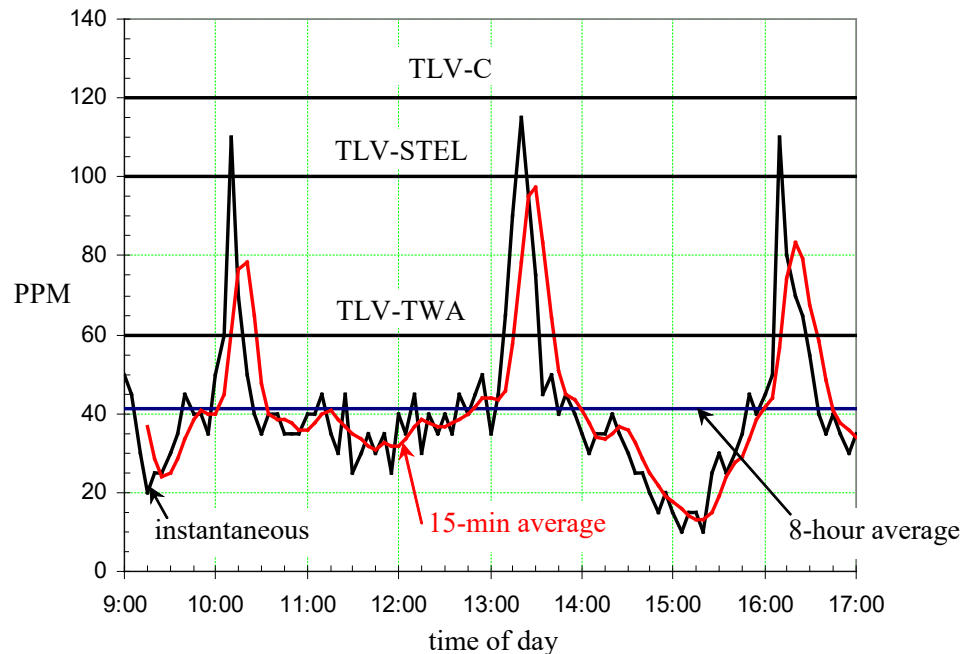
- Pg. 217, line 6 of Section 3.4.5: Change "Eq. (3-27)" to "Eqs. (3-21) and (3-27)".
- Pg. 217, line 7 of Section 3.4.5: Change "sound power level (L_w)" to "sound power (W)".
- Pg. 248, last line: Change ">" to "=" to avoid confusion. (The ramp function is *periodic* every hour for 8 hours.)
- Pg. 250, third line from bottom: Change "61.25" to "57.1".
- Pg. 250, last line: Change "mass concentration" to "mol fraction".
- Pg. 251, first line: Change "c" to "y" in three places since this is a mol fraction, not a mass concentration.
- Pg. 251, Problem 3.16: Change the fourth sound pressure level from "84 dBA" to "94 dBA".
- Pg. 252, line 2: Change "enter" to "center", and change "machine." to "machine, perpendicular to the wall."

- Pg. 260, sixth line from bottom: The AMTIC and EMTIC bulletin boards are now located on the web at http://www.epa.gov/ttn/ . Furthermore, the EMTIC bulletin board is now called simply EMC.
- Pg. 268, Example 4.4: The density is off by a factor of 1000, and this changes $c_{molar,L}$ and the answer:
  - Change the density from "1460 g/cm^3" to "1.460 g/cm^3" [2 places]
  - Change $c_{molar,L}$ from "11.14 gmol/cm^3" to "0.01111 gmol/cm^3" [2 places]
  - Change the answer in the equation from "943.3 kg/hr" to "345.5 kg/hr" [1 place]
  - Change the final answer in the discussion from "940 kg/hr" to "350 kg/hr" [1 place]
- Pg. 286, Eq. 4-51: Change "y_b" to "y_j".
- Pg. 300, heading of 6th column of table at bottom of page: Change "n_j/M_j" to "m_j/M_j".
- Pg. 335, Problem 2(d), first line: Change "Compare" to "Estimate".
- Pg. 345, Equation 5-2: add ρ_{air} in the denominator, just to the left of the large square brackets.
- Pg. 350, second paragraph, third line: Change "diary" to "dairy".
- Pg. 365, 3rd line from bottom: Change "10." to "5.0" [to agree with the solution].
- Pg. 368, first line of paragraph above Eq. (5-20): Change "Figure 5.5" to "Figure 5.4".
- Pg. 369, the six lines between Eq. (5-24) and Fig. 5.6: Change to "Repace and Lowery (1980) found that the quantity $(V/A_s k_w)$ has a value of 10. min, corresponding to an adsorption rate constant (k_w) of 0.078 cm/s, which is in general agreement with Cano-Ruiz et al. (1993) if the effective surface area of adsorbing surfaces in the room (A_s) is 47. m^2. This rate of adsorption is equivalent to an exhaust ventilation flow rate of 2.2 m^3/min (78. ACFM). Thus, adsorption in this small room lowered the concentration in a fashion equivalent to a ventilation flow rate of 78. ACFM or 6.0 room air changes per hour."
- Pg. 404, about the middle of the page: Change "Sandberg (1983)" to "Sandberg and Sjöberg (1983)".
- Pg. 416, Figure 5.17: Change the label "$k_w A_s c$" to "$k_w A_s c \dfrac{dx}{L}$".
- Pg. 417, Eq. 5-77: Change the "dx" in the denominator to "L". The proper equation is "$k = \dfrac{A_s}{A_c L} k_w$".
- Pg. 425, Problem 5.5, fourth line: Change the rate from "0.10 m^3/hr" to "0.10 m^3/min" to be more reasonable.
- Pg. 427, line 5 of Problem 5.10: Change "HCOH" to "HCHO" (more common way to write the chemical formula).
- Pg. 427, line 5 of Problem 5.10: Change "PEL of 3" to "PEL of 0.75". (The PEL has been lowered since this problem was written.)
- Pg. 427, first line of Problem 5.11: Change "Toluene 2,4-diocyanate (M = 171.5)" to "Toluene 2,4-diisocyanate (M = 174.2)".
- Pg. 431, 2nd-to-last line from the bottom: Change "concentration of to" to "concentration of ammonia to".
- Pg. 445, vertical axis of the bottom part of Fig. 6.9: Change "00" to "100". (The "1" got chopped off somehow.)
- Pg. 458, line just above the Discussion: Change "*width*" to "*length*", change "W" to "L", and change "4.6" to "8.2".
- Pg. 489, the vertical scale of Fig. 6.28: Change the top "0.001" to "0.1".
- Pg. 511, Figure P6.13: Add the units "(inches of water)" to the vertical scale.
- Pg. 527, line just above the two bullet items near the bottom of the page: Change "complimentary" to "complementary".
- Pg. 594, row 5, last column of Table E8.2: Change "0/85" to "0.85".
- Pg. 603, third line of _Option C_: Change "spilt" to "split".
- Pg. 604, Eq. (8-51): Change "<" to ">".
- Pg. 621, Eq. (8-104): Change "D_{aero}" to "$D_{p,aero}$".
- Pg. 621, Eq. (8-104): Change "$C(D_a)$" to "$C(D_{p,aero})$".
- Pg. 634, Eq. (8-129): The L and the U_0 are inverted. The equation should be "$t^* = tU_0/L$".
- Pg. 634, last line of first paragraph of Section 8.11: Add "It is also assumed that $\rho_p \gg \rho$."
- Pg. 653, top: Add a large "9" to indicate the new chapter number, as on the first page of other chapters.
- Pg. 658, in the equation set, top equation on the right: Change "$W = L_3 = D_d$" to "$W = D_d$". (Note that $L_3 = D_2/8$, not $D_2/4$.)
- Pg. 697, the second occurrence of the word "Diffusion": Change "Diffussion" to "Diffusion".
- Pg. 739, first line in Section 10.2.1: Change "D = 20.0 cm" to "D = 20.0 mm".
- Pg. 739, Figure 10.2: Change length "0.20 m" to "0.02 m", and change length "3.0 m" to "0.3 m".
- Pg. 741, third line from top: Change "20.0 cm" to "20.0 mm".
- Pg. 810, end of first line of the length conversions: Change "39.37 cm" to "39.37 in".
- Pg. 810, end of first line of the pressure conversions: Change "33.92 inches" to "33.92 ft".
- Pg. 839, Ref. for Sandberg: The correct citation is as follows:
  Sandberg, M and Sjöberg , M, "The Use of Moments for Assessing Air Quality in Ventilated Rooms", Building and Environment, Vol. 18, Issue 4, pp 181-197, 1983.
- Pg. 858, third and fourth lines (index citation for "Interstitial fluid, Fig. 2.8" and "Interstitium, Fig. 2.8"): Change the page number from "94" to "93" in both cases.