

**ERRATA SHEET FOR THE  
USER'S MANUAL  
TO  
ASHRAE/IESNA STANDARD 90.1-1999 Energy Standard for  
Buildings Except Low-Rise Residential Buildings**

**December 15, 2001**

The corrections listed in this errata sheet apply to all copies of ASHRAE/IESNA Standard 90.1-1999, User's Manual. However, the shaded items have been added since the previous published errata sheet dated December 15, 2000 was distributed.

**NOTICES:**

Check the ASHRAE website, <http://www.ashrae.org/JOURNAL/hblist.htm>, for the latest updates to the Standard 90.1-1999 User's Manual ENVSTD 4.0 software. Version 1.0.8 released November 20, 2001 is the latest version as of the publication date of this errata sheet.

ASHRAE now has a list server for Standing Standards Project Committee 90.1 (SSPC 90.1). Interested parties can now subscribe and unsubscribe to the list server and be automatically notified via e-mail when activities and information related to the Standard and the User's Manual is available. To sign up for the list server please visit **Standards List Servers** on the Standards and Codes section of the ASHRAE website at <http://www.ashrae.org/STANDARDS/listservers.htm>.

| <u>Page</u> | <u>Erratum</u>  |
|-------------|---|
| 5-49        | Example 5-L. Under "A" (Answer), in the second column titled "Weight (lb/ft <sup>2</sup> )", change title to "Weight (lb/ft <sup>3</sup> )".  |
| 5-49        | Example 5-L. Under "A" (Answer), in the fifth column titled "HC (Btu/ft <sup>2</sup> ·°F)", change the Total HC from "10.60" to "20.80".  |
| 5-60        | <b>Building Envelope</b> Reference. In the first column, change the third sentence to read "U-factors must be calculated in one of three ways: Laboratory tests, the parallel path calculation method using the insulation/framing layer adjustment factors in Table A-21 or the modified zone method." |
| 5-61        | Example 5-O. Under "Q" (Question), change the last sentence, which is in parenthesis, to read "(Hint: use the parallel path calculation method and effective R-values from Table A-21)."  |
| 5-61        | Example 5-O. Under "A" (Answer), change the first sentence to read "The   |

parallel path calculation method is used as shown below.”

- 5-61 Example 5-O. Under “A” (Answer), change the third sentence “...8.6 from Table A-21” to read “...9.6 from Table A-21”.
- 5-61 Example 5-O. Under “A” (Answer), in the third column titled “Source of Data”, third row down, change “ASHEAE Handbook” to read “ASHRAE Handbook”.
- 6-29 Exceptions to 6.2.4.2. In the last paragraph of 6.2.4.2d, change “Table 6-E” to “Table 6-C”.
- 6-43 Figure 6-H – Economizer Schematic. In the upper left-hand corner of Figure 6-H, change “Hi-light switch” to Hi-limit switch”.
- 6-44 **Figure 6-J - Electronic Economizer Lockout:** The control curves are incorrectly labeled; reverse the order (from left to right) from “A, B, C, D” to “D, C, B, A”.
- 6-49 *Air-Precooling Water Economizer.* In the second column, last line, change “Figure 6-M” to “Figure 6-O”.
- 6-50 Example 6-NN. Under Q (Question) and A (Answer), change “55 °F” to “50 °F”.
- 6-56 At the top of the center column, delete the clause “, or the generalized version of this equation, Equation 6-E, discussed in the Air System Design and Control section of this chapter.” In the middle of the center column, change “Equation 6-E” to “Equation 6-1 in Standard 62”.
- 6-64 Example 6-AAA – Adjustment of Fan Energy, Excess Filter Pressure Drop. Under A (Answer) replace the “ $HP_{\text{relief}}$ ” formula with the “ $P_{\text{filter}}$ ” formula in the center column of page 6-63.
- 6-69 **Hydronic System Design and Control (6.3.4).** In the third column, second to last line, change “...lower” pump energy savings... to “...greater” pump energy savings... In the third column, under “**Variable Flow Requirement (6.3.4.1)**”, second paragraph, fourth line, change “...have variable, speed drives...” to “...have variable speed drives...”
- 6-80 **Compliance Forms.** HVAC Mandatory Provisions Form, Part II, Page 1, under both worksheets, in the sixth column titled “Minimum Efficiency”, change “ $\leq$ ” (less than or equal) to “ $\geq$ ” (greater than or equal).
- 7-5 **Equipment Efficiency (7.2.2).** In the first column, second and third paragraphs (typical 3 places), change “9/1/2001” to “10/29/2001”.

7-6 Example 7-B. Under Q (Question), third line, change “September 1, 2001” to “October 29, 2001”.

7-6 Example 7-C. Under A (Answer), required maximum standby loss, replace existing equation with:  $\frac{Q}{800} + 110\sqrt{V} = \frac{1,000,000}{800} + 110\sqrt{23} = 1,778 \frac{\text{Btu}}{\text{hr}}$

7-6 Example 7-C. Under A (Answer), change “(9/1/2001)” to “(10/29/ 2001)”.

7-7 Example 7-D. Under A (Answer), typical four places, change “9/1/2001” to “10/29/2001”

7-7 Example 7-D. Under A (Answer), standby loss requirement, replace existing equation with:  $SL = 7.47V + 546 = 7.47 \times 100 + 546 = 1,293 \frac{\text{Btu}}{\text{h}}$

7-7 Example 7-E. Under A (Answer), replace all three equations with:

$$E_t: \quad E_t = \frac{Q_{\text{out}}}{Q_{\text{in}}} = \frac{1,497,000}{1,825,000} = 82\%$$

$$\text{Input-to-Volume Ratio:} \quad \frac{Q_{\text{in}}}{V_{\text{heater}}} = \frac{1,825,000 \text{Btu/h}}{45 \text{gal}} = 40,556 \frac{\text{Btu}}{\text{h-gal}}$$

$$SL: \quad \frac{Q}{800} + 110\sqrt{V} = \frac{1,825,000}{800} + 110\sqrt{45} = 3019 \frac{\text{Btu}}{\text{hr}}$$

7-7 Example 7-E. Under A (Answer), change “(9/1/2001)” to “(10/29/ 2001)”.

7-14 Example 7-I. Under A (Answer), replace the existing equations with:

$$\text{PMD:} \quad pmd = 40 \text{ units} * 10 \frac{\text{gal}}{\text{unit-hr}} = 400 \frac{\text{gal}}{\text{hr}}$$

$$SL: \quad SL = \frac{13.3 \times pmd + 400}{n} = \frac{13.3 \times 400 + 400}{.65} = 8,809 \frac{\text{Btu}}{\text{hr}}$$

7-16 **Reference.** In the second column, “Input-to-Volume Ratio”, first line, change ...input-to-volume “ration”... to ...input-to volume “ratio”...

7-18 **Compliance Forms.** In the second column titled “Equipment Efficiency Worksheet”, third paragraph, change the sentence “The efficiency of the equipment must be less than the required efficiency to comply.” to “The efficiency of the equipment must be greater than or equal to the required efficiency to comply.”

- 7-18     **Compliance Forms.** Service Water Heating Compliance Documentation Form. In the table titled “Equipment Efficiency Worksheet (§7.2.1)”, sixth column titled “Energy Factor or Et”, change “ $\leq$ ” (less than or equal) to “ $\geq$ ” (greater than or equal), 5 places. In the table titled “Combination Space and Water Heating Worksheet (§7.3.1)”, third and fourth columns, change “ $\leq$ ” (less than or equal) to “ $<$ ” (less than), 5 places in each column.
- 11-44     **Notes for Simulation Program Developers.** Move the first paragraph, first  
and     and second sentences, to page 11-42 as the concluding paragraph to  
11-42     “**Adoption Considerations**”. Locate this paragraph after issue 6 titled  
“Approve purchase energy rates.” Insert a blank line following the last  
paragraph of issue 6 and indent the first sentence in this new paragraph  
starting with the word “Whether...”
- 11-44     **Notes for Simulation Program Developers.** Indent the first sentence in  
each paragraph on page 11-44. These are: “Successful implementation...”  
and “There will be opportunities...”