

**ERRATA SHEET FOR THE FIRST PRINTING OF  
ANSI/ASHRAE/IESNA STANDARD 90.1-2007 (SI edition)  
Energy Standard for Buildings Except Low-Rise Residential Buildings**

**July 20, 2011**

The corrections listed in this errata sheet apply to the first printing of ANSI/ASHRAE/IESNA Standard 90.1-2007, SI edition, identified on the outside back cover of the standard as “86149 PC 12/08”. The shaded item has been added since the previously published errata sheet dated September 20, 2010 was distributed.

**NOTICE:** 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 **Project Committee List Servers for Standard** on the Technology / Standards section of the ASHRAE website at <http://www.ashrae.org/publications/detail/15620>.

**Page(s)   Erratum**

- 11     **Section 3.2 Definitions.** On page 11 delete the following definition:  
*(Note: the standard does not include a definition for lamp wattage, rated and this term is not used in the standard.)*
- rated lamp wattage: see lamp wattage, rated.*
- 23     **Table 5.5-5 Building Envelope Requirements for Climate Zone 5 (A, B, C).** In the first column of Table 5.5-5 under the heading “**Fenestration**” change “*Vertical Glazing, % of Wall*” to read “*Vertical Glazing, 0% - 40% of Wall*”.
- 27     **5.5.3.3 Below-Grade Wall Insulation.** Change the first sentence in Section 5.5.3.3 as follows:  
*(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)*
- 5.5.3.3 Below-Grade Wall Insulation.** *Below-grade walls shall have a rated R-value of insulation not less than that the insulation values specified in Tables 5.5-1 through 5.5-8.*
- 28     **5.5.4.2.1 Vertical Fenestration Area.** Change the Exception to 5.5.4.2.1 as follows:  
*(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)*
- Exception:** *Vertical fenestration complying with Exception (c)~~(b)~~ to Section 5.5.4.4.1.*
- 48     **TABLE 6.8.1F Gas-and Oil-Fired Boilers, Minimum Efficiency Requirements.** Change the size category (Input) for oil-fired hot water boilers as follows:  
*(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)*
- (See next page)

**TABLE 6.8.1F Gas- and Oil-Fired Boilers, Minimum Efficiency Requirements**

Equipment Type <sup>a</sup>	Subcategory or Rating Condition	Size Category (Input)	Minimum Efficiency <sup>b,c</sup>	Efficiency as of 3/2/2010 (Date 3 yrs after ASHRAE Board Approval)	Efficiency as of 3/2/2020 (Date 13 yrs after ASHRAE Board Approval)	Test Procedure
Boilers, hot water	Gas-fired	<88 kW	80% AFUE	80% AFUE	80% AFUE	10 CFR Part 430
		≥88 kW and ≤733 kW	75% $E_t$	80% $E_t$	80% $E_t$	10 CFR Part 431
		>733 kW <sup>a</sup>	80% $E_c$	82% $E_c$	82% $E_c$	
	Oil-fired <sup>e</sup>	<88 kW	80% AFUE	80% AFUE	80% AFUE	10 CFR Part 430
		≥88 kW and ≤733 kW	78% $E_t$	82% $E_t$	82% $E_t$	10 CFR Part 431
		>733 kW <sup>a</sup>	83% $E_c$	84% $E_c$	84% $E_c$	

54 **TABLE 6.8.3 Minimum Pipe Insulation Thickness<sup>a</sup>.** In the column titled “Nominal Pipe or Tube Size (in.)” change “(in.)” to “(mm)”.

97 **Table A6.3 Assembly F-Factors for Slab-on-Grade Floors.** In the second set of values for both unheated and heated slabs (300, 600, 900, and 1200 mm) change the word “horizontal” to “vertical”. See attached Table A6.3 for changes.

104 **TABLE A9.4C Effective R-Values for Fiberglass.** In the row titled “Standard Thickness, in.” change “in.” to “mm”.

152 **Table D-3 International Climate Data (continued).** For **China**, Cangzhou, under the second column titled “Providence or Region” change “Municipalities” to “Hebei” and relocate this row (Cangzhou) to Table D-3, page 154, and place between “Baoding” and “Chengde” which are also located (and alphabetically listed) in Hebei.

173 **Informative Appendix F Addenda Description Information.** For Addendum “ad” in Table F-1, in the column titled “Description of Changes”, change Section “5.3.1.1” to Section “5.5.3.1”.

174 **Informative Appendix F Addenda Description Information.** For Addendum 90.1ak in Table F-1, in the column titled “Description of Changes”, change Table “6.2.1G” to Table “6.8.1G”.

183 **Section G3.1.2.9 System Fan Power.** Change the equation in Section G3.1.2.9 as follows: (Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

For Systems 1 and 2,

$$P_{fan} = CFM_S \cdot 0.3$$

For Systems 3 through 8,

$$P_{fan} = \underline{\text{input kW}}_{\text{Watts}} \times \underline{1000} / \underline{746} / \text{Fan Motor Efficiency}$$

where

$P_{fan}$  = electric power to fan motor (watts) and

input kW<sub>i</sub> = input kW<sub>i</sub> of *baseline* fan motor from Table G3.1.2.9

Fan Motor Efficiency = the efficiency from Table 10.8 for the next motor size greater than the input kW using the enclosed motor at 1800 rpm.

CFM<sub>S</sub> = the baseline system maximum design supply fan airflow rate in L/s

- 183 **TABLE G3.1.2.9 Baseline Fan Power.** Change Table G3.1.2.9 as follows:  
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

Change the title as follows:

**TABLE G3.1.2.9 Baseline Fan Motor Power**

For Constant Volume Systems 3-4 in column one change:

$$\underline{kW_i} = L_S \cdot 0.0015 + A$$

For Variable Volume Systems 5-8 in column 2 change:

$$\underline{kW_i} = L_S \cdot 0.0021 + A$$

- 184 **TABLE G3.1.3.7 Type and Number of Chillers.** Revise Table G3.1.3.7 as follows:  
(Note: Additions are shown in underline and deletions are shown in ~~strikethrough~~.)

**TABLE G3.1.3.7 Type and Number of Chillers**

<b>Building Peak Cooling Load</b>	<b>Number and Type of Chiller(s)</b>
$\leq \underline{1055 \text{ kW}}$ <del>11,148 m<sup>2</sup></del>	1 water-cooled screw chiller
$> \underline{1055 \text{ kW}}$ <del>11,148 m<sup>2</sup></del> , $< \underline{2110 \text{ kW}}$ <del>22,296 m<sup>2</sup></del>	2 water-cooled screw chillers sized equally
$\geq \underline{2110 \text{ kW}}$ <del>22,296 m<sup>2</sup></del>	2 water-cooled centrifugal chillers minimum with chillers added so that no chiller is larger than 2813 kW, all sized equally

**TABLE A6.3 Assembly F-Factors for Slab-on-Grade Floors**

Insulation Description	Rated R-Value of Insulation												
	R-0.0	R-0.9	R-1.3	R-1.8	R-2.6	R-3.5	R-4.4	R-5.3	R-6.2	R-7.0	R-7.9	R-8.8	R-9.7
<b>Unheated Slabs</b>													
None	1.26												
300 mm horizontal		1.24	1.23	1.23	1.23								
600 mm horizontal		1.21	1.21	1.20	1.19								
900 mm horizontal		1.18	1.17	1.15	1.14								
1200 mm horizontal		1.16	1.13	1.11	1.09								
300 mm <del>vertical</del> horizontal		1.05	1.03	1.01	0.99	0.98	0.98	0.98					
600 mm <del>vertical</del> horizontal		1.00	0.97	0.93	0.90	0.88	0.87	0.87					
900 mm <del>vertical</del> horizontal		0.97	0.93	0.88	0.84	0.82	0.80	0.80					
1200 mm <del>vertical</del> horizontal		0.93	0.88	0.83	0.78	0.75	0.73	0.72					
Fully insulated slab		0.80	0.71	0.62	0.52	0.45	0.40	0.37	0.34	0.32	0.30	0.29	0.28
<b>Heated Slabs</b>													
None	2.33												
300 mm horizontal		2.27	2.26	2.26	2.25								
600 mm horizontal		2.21	2.19	2.18	2.16								
900 mm horizontal		2.14	2.10	2.07	2.04								
1200 mm horizontal		2.08	2.02	1.96	1.92								
300 mm <del>vertical</del> horizontal		1.84	1.76	1.73	1.70	1.67	1.67	1.66					
600 mm <del>vertical</del> horizontal		1.72	1.64	1.57	1.50	1.46	1.44	1.43					
900 mm <del>vertical</del> horizontal		1.64	1.54	1.45	1.36	1.32	1.29	1.28					
1200 mm <del>vertical</del> horizontal		1.57	1.47	1.35	1.25	1.19	1.16	1.14					
Fully insulated slab		1.28	1.11	0.95	0.76	0.65	0.56	0.51	0.47	0.44	0.41	0.39	0.38