

**2009 INTERNATIONAL ENERGY
CONSERVATION CODE ERRATA**
(Portions of text and tables not shown are unaffected by the errata)
6th PRINTING (Posted: October 7, 2011)

**CHAPTER 4
RESIDENTIAL ENERGY EFFICIENCY**

**TABLE 402.1.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a**

j. For impact rated fenestration complying with Section R301.2.2 of the *International Residential Code* Section ~~4608.1.2~~ 1609.1.2 of the *International Building Code*, the maximum U-factor shall be 0.75 in Zone 2 and 0.65 in Zone 3.

**TABLE 405.5.2(1)
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS**

Building Component	Standard Reference Design	Proposed Design
Service water H₂O heating ^{n,k,l}	As proposed Use: same as proposed design	As proposed $\text{gal/day} = 30 + (10 \times N_{br})$

2009 International Energy Conservation Code Errata

(Portions of text and tables not shown are unaffected by the errata)

1st thru 10th PRINTING (Posted: September 13, 2012)

CHAPTER 5 COMMERCIAL ENERGY EFFICIENCY

502.4 Air leakage (Mandatory).

502.4.1 Window and door assemblies. The air leakage of window and sliding or swinging door assemblies that are part of the building envelope shall be determined in accordance with AAMA/WDMA/CSA 101/I.S.2/A440, or NFRC 400 by an accredited, independent laboratory, and *labeled* and certified by the manufacturer and shall not exceed the values in Section ~~402.4.2~~ 402.4.4.

Exception: Site-constructed windows and doors that are weatherstripped or sealed in accordance with Section 502.4.3.

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**CHAPTER 5
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503.4.5 Requirements for complex mechanical systems serving multiple zones. Sections 503.4.5.1 through ~~503.4.5.3~~ 503.4.5.4 shall apply to complex mechanical systems serving multiple zones.

**2009 INTERNATIONAL ENERGY
CONSERVATION CODE ERRATA**

1ST through 5th PRINTING (Updated April 18, 2011)

**CHAPTER 5
COMMERCIAL ENERGY EFFICIENCY**

503.2.3 HVAC equipment performance requirements. Equipment shall meet the minimum efficiency requirements of Tables 503.2.3(1), 503.2.3(2), 503.2.3(3), 503.2.3(4), 503.2.3(5), 503.2.3(6), ~~and~~ 503.2.3(7) and 503.2.3(8) when tested and rated in accordance with the applicable test procedure. The efficiency shall be verified through certification under an *approved* certification program or, if no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements. Where components, such as indoor or outdoor coils, from different manufacturers are used, calculations and supporting data shall be furnished by the designer that demonstrates that the combined efficiency of the specified components meets the requirements herein.

(No change to remainder of section)

Posted 4/18/2011

**TABLE 503.2.3(8)
PERFORMANCE REQUIREMENTS FOR HEAT REJECTION EQUIPMENT**

<u>EQUIPMENT TYPE</u>	<u>TOTAL SYSTEM HEAT REJECTION CAPACITY AT RATED CONDITIONS</u>	<u>SUBCATEGORY OR RATING CONDITION</u>	<u>PERFORMANCE REQUIRED^{a,b}</u>	<u>TEST PROCEDURE^c</u>
<u>Propeller or axial fan cooling towers</u>	<u>All</u>	<u>95°F entering water</u> <u>85°F leaving water</u> <u>75°F wb outdoor air</u>	<u>≥ 38.2 gpm/hp</u>	<u>CTI ATC-105</u> <u>and</u> <u>CTI STD-201</u>
<u>Centrifugal fan cooling towers</u>	<u>All</u>	<u>95°F entering water</u> <u>85°F leaving water</u> <u>75°F wb outdoor air</u>	<u>≥ 20.0 gpm/hp</u>	<u>CTI ATC-105</u> <u>and</u> <u>CTI STD-201</u>
<u>Air cooled condensers</u>	<u>All</u>	<u>125°F condensing temperature</u> <u>R-22 test fluid</u> <u>190°F entering gas temperature</u> <u>15°F subcooling</u> <u>95°F entering db</u>	<u>≥ 176.000</u> <u>Btu/h · hp</u> <u>(69 COP)</u>	<u>ARI 460</u>

For SI: °C = [(°F) - 32] / 1.8, 1 British thermal unit per hour = 0.2931 W, 1 gallon per minute per horsepower = 0.846 L/s kW.

wb = wet-bulb temperature, °F

- For purposes of this table, cooling tower performance is defined as the maximum flow rating of the tower units (gpm) divided by the fan nameplate rated motor power units (hp).
- For purposes of this table, air-cooled condenser performance is defined as the heat rejected from the refrigerant units (Btu/h) divided by the fan nameplate rated motor power units (hp).
- Chapter 6 contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

(This table should be inserted after Table 503.2.3(7) on p. 48 of the 2009 IECC. This table is from 2006 IECC Table 503.2.3(11) and its title, data and footnotes remain unchanged.) Posted 4/18/2011

Table 502.2(1)
BUILDING ENVELOPE REQUIREMENTS – OPAQUE ASSEMBLIES

CLIMATE ZONE	4 EXCEPT MARINE	
	All other	Group R
Walls, Above Grade		
Mass	R-9.5ci	R-11.4ci
Metal building ^b	R-169	R-19
Metal framed	R-13 + R-7.5ci	R-13 + R-7.5ci
Wood framed and other	R-13 + R- 3.8ci	R-13 + R-3.8ci

(Portions of table not shown remain unchanged)

(For Climate Zone 4 Except Marine, "All other" column for Metal framed walls, above grade it should state R-13 + R-7.5 ci. The ci is missing)
Posted 4/18/2011

TABLE 503.2.8
MINIMUM PIPE INSULATION
(thickness in inches)
(No change to table)

For SI: 1 inch = 25.4 mm.

- Based on insulation having a conductivity (*k*) not exceeding 0.27 Btu per inch/h · ft² · °F.
- For insulation with a thermal conductivity not equal to 0.27Btu · inch/h · ft² · °F at a mean temperature of 75°F, the minimum required pipe thickness is adjusted using the following equation;

$$\frac{T}{t} = \frac{r[(1 + t/r)^{K/k} - 1]}{r[(1 + t/r)^{K/k} - 1]}$$

where:

- T* = Adjusted insulation thickness (in).
r = Actual pipe radius (in).
t = Insulation thickness from applicable cell in table (in).
K = New thermal conductivity at 75°F (Btu · in/hr · ft² · °F).
k = 0.27 Btu · in/hr · ft² · °F.

*(The formula for $T = r[(1 + t/r)^{K/k} - 1]$ is incorrect as it should be written:
 $T = r[(1 + t/r)^{K/k} - 1]$. *t* is divided by *r*, there is no "r")* Posted 4/18/2011

**2009 INTERNATIONAL ENERGY
CONSERVATION CODE ERRATA**

1st through 4th PRINTING (Updated July 6, 2010)

**CHAPTER 4
RESIDENTIAL ENERGY EFFICIENCY**

404.1 Lightning Equipment. A minimum of 50 percent of the lamps in permanently installed lighting fixtures shall be high-efficiency lamps.

Posted 7/06/2010

**TABLE 405.5.2(1)-continued
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS**

Heating systems ^{l, n}	As proposed Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i>	As proposed
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(Change the "g" after Heating systems to an "l") Posted 7/06/2010

**2009 INTERNATIONAL ENERGY
CONSERVATION CODE ERRATA**

1st through 4th PRINTING (Updated July 6, 2010)

**CHAPTER 5
COMMERCIAL ENERGY EFFICIENCY**

502.2.5 Floors, over outdoor air or unconditioned space. The minimum thermal resistance (R-value) of the insulating material installed either between the floor framing or continuously on the floor assembly shall be as specified in Table 502.2(1), based on construction materials used in the floor assembly.

“Mass floors” shall include floors weighing at least (1) 35 pounds per square foot (170 kg/m²) of floor surface area or (2) 25 pounds per square foot (120 kg/m²) of floor surface area if the material weight is not more than 120 pounds per cubic foot (1,900 kg/m³).

(Add “120”). Posted 7/06/2010

503.4.7 Hot gas bypass limitation. Cooling systems shall not use hot gas bypass or other evaporator pressure control systems unless the system is designed with multiple steps of unloading or continuous capacity modulation. The capacity of the hot gas bypass shall be limited as indicated in Table 503.4.7.

Exception: Unitary packaged systems with cooling capacities not greater than 90,000 Btu/h (26 379 W).

(Change Table 502.4.4 to Table 503.4.7) Posted 7/06/2010

**2009 INTERNATIONAL ENERGY
CONSERVATION CODE ERRATA**

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H

HOT BYPASS.....503.4.7

(Add HOT BYPASS after HISTORIC BUILDINGS, under H in the Index)

CHAPTER 4 RESIDENTIAL ENERGY EFFICIENCY

404.1**LIGHTNING EQUIPMENT (PRESCRIPTIVE)**

(Remove Prescriptive from the Title). Posted 1/28/2010

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Air exchange rate	Specific leakage area (SLA) ^{de} = 0.00036 assuming no energy recovery	For residences that are not tested, the same as the standard reference design. For residences without mechanical ventilation that are tested in accordance with ASHRAE 119, Section 5.1, the measured air exchange Rate ^{ef} but not less than 0.35 ACH For residences with mechanical ventilation that are tested in accordance with ASHRAE 119, Section 5.1, the measured air exchange rate ^e combined with the mechanical ventilation rate, f which shall not be less than $0.01 \times CFA + 7.5 \times (Nbr+1)$ where: <i>CFA</i> = conditioned floor area <i>Nbr</i> = number of bedrooms
Internal mass	An internal mass for furniture and contents of 8 pounds per square foot of floor area.	Same as standard reference design, plus any additional mass specifically designed as a thermal storage element ^g , but not integral to the building envelope or structure
Heating systems ^{gh}	As proposed Capacity: sized in accordance with Section M1401.3 of the International Residential Code	As proposed
Cooling systems ^{gh}	As proposed Capacity: sized in accordance with Section M1401.3 of the International Residential Code	As proposed
Service water heating ^{h, k, l}	As proposed Use: same as proposed design	As proposed gal/day = $30 + (10 \times Nbr)$

(Portions of Table not shown remain unchanged.)

Air exchange rate: Change the "d" from (SLA) to an "e" under Standard Reference Design. Also change the "e" after Rate to "f" under Proposed Design. **Internal Mass:** Remove the "f" element^f under Proposed Design. **Heating systems:** Remove the "g" from after Heating systems under Building Component. **Cooling systems:** Change the "g" to "h" Under Building Component. **Service water:** Add "l" after Service water heating "h,k" under Building Component.) Posted 1/28/2010

CHAPTER 5 COMMERCIAL ENERGY EFFICIENCY

**TABLE 502.1.2
BUILDING ENVELOPE REQUIREMENTS OPAQUE ELEMENT, MAXIMUM U-FACTORS**

CLIMATE ZONE	1		4 EXCEPT MARINE		5 AND MARINE 4	
	All other	Group R	All other	Group R	All other	Group R
Walls, Above Grade						
Mass	U-0.058 U-0.58	U-0.151	U-0.104	U-0.90 U-0.090	U-0.90 U-0.080	U-0.80
Metal building	U-0.093	U-0.093	U-0.084	U-0.084	U-0.069	U-0.069
Metal framed	U-0.124	U-0.124	U-0.064	U-0.064	U-0.064	U-0.064
Wood framed and other	U-0.089	U-0.089	U-0.089	U-0.064	U-0.064	U-0.051
Slab-on-Grade Floors						
Unheated slabs	F-0.730	F-0.730	F-0.730	F-0.540	F-0.730	F-0.540
Heated slabs	F-1.020	F-1.020	— F-0.860	F-0.860	F-0.860	F-0.860

(Portions of Table not shown remain unchanged.)

Mass: Under Climate Zone 1, change U-0.058 to U-0.58. Under Climate Zone 4, change U-0.90 to U-0.090. Under Climate Zone 5 and 4, change U-0.80 to U-0.080. **Heated slabs:** Under Climate Zone 4, change — to F-0.860) Posted 1/28/2010

**TABLE 502.2(1)
BUILDING ENVELOPE REQUIREMENTS – OPAQUE ASSEMBLIES**

CLIMATE ZONE	1		2		4 EXCEPT MARINE		5 AND MARINE 4		6	
	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R
Walls, Above Grade										
Wood framed and other	R-13	R-13	R-13	R-13	R-13	R-13 + R-3.8ci	R-13 + R-3.8ci	R-13 + R-3.8ci	R-13 + R-7.5ci	R-13 + R-7.5ci

(Portions of Table not shown remain unchanged. In Climate Zone 5 add "ci" to column Group R. In Climate Zone 6 add "ci" to columns All Other & Group R) Posted 1/28/2010

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M

~~MOISTURE CONTROL.....402.5~~

(Remove Moisture Control from the Index) Posted 1/28/2010

P

POOL COVERS.....403.9.3, 504.7.3

(Add 403.9.3 to the Section area of Pool Covers in the Index) Posted 1/28/2010

CHAPTER 3
CLIMATE ZONES GENERAL REQUIREMENTS

(Change Chapter 3 title from Climate Zones to General Requirements) Posted 5/14/2009

TABLE 301.3 (1)
INTERNATIONAL CLIMATE ZONE DEFINITIONS
MAJOR CLIMATE TYPE DEFINITIONS

<p>Marine (C) Definition- Locations meeting all four criteria:</p> <ol style="list-style-type: none"> 1. Mean temperature of coldest month between -3°C (27°F) and 18°C (65°F) 2. Warmest month mean < 22°C (72°F) 3. At least four months with mean temperatures over 10°C (50°F) 4. Dry season in summer. The month with the heaviest precipitation in the cold season has at least three times as much precipitation as the month with the least precipitation in the rest of the year. The cold season is October through March in the Northern Hemisphere and April through September in the Southern Hemisphere.
<p>Dry (B) Definition – Location meeting the following criteria: not Marine and $P_{in} < 0.44 \times (TF - 19.5)$ [$P_{cm} < 2.0 \times (TC + 7)$ in SI units] Where: P_{in} = Annual precipitation in inches (cm) T = Annual mean temperature in °F (°C)</p>
<p>Moist (A) Definition – Locations that are not Marine and not Dry.</p>
<p>Warm-humid Definition – Moist (A) locations where either of the following wet-bulb temperature conditions shall occur during the warmest six consecutive months of the year:</p> <ol style="list-style-type: none"> 1. 67°F (19.4°C) or higher for 3,000 or more hours; or 2. 73°F (22.8°C) or higher for 1,500 or more hours

For SI: °C = [(F)-32]/1.8; 1 inch = 2.54 cm.

(Remove the definition for "Warm-humid" from above Dry (B) Definition to underneath Moist (A) Definition (bottom of Table). Add Marine (C) Definition above Dry (B) Definition (top of Table). Posted 5/14/2009

CHAPTER 4 RESIDENTIAL ENERGY EFFICIENCY

**TABLE 402.1.3
EQUIVALENT U-FACTORS^a**

c. Basement wall U-factor of 0.360 in warm-humid locations as defined by Figure 301.1 and Table ~~301.2~~ 301.1.

(Portions of table not shown remain unchanged. In the c footnote, change Table 301.2 to Table 301.1) Posted 5/14/2009

402.2.5 STEEL-FRAME CEILINGS, WALLS, AND FLOORS

Exception: In Climate Zones 1 and 2, the continuous insulation requirements in Table ~~402.2.4~~ 402.2.5 shall be permitted to be reduced to R-3 for steel frame wall assemblies with studs spaced at 24 inches (610 mm) on center.

(Change Table Section from 402.2.4 to 402.2.5 in the Exception. All remaining text; remains unchanged) Posted 5/14/2009

402.2.9 CRAWL SPACE WALLS

As an alternative to insulating floors over crawl spaces, crawl space walls shall be permitted to be insulated when the crawl space is not vented to the outside. Crawl space wall insulation shall be permanently fasted to the wall and extend downward from the floor to the finished grade level and then vertically and/or horizontally for at least an additional 24 inches (610mm). Exposed earth in unvented crawl space foundations shall be covered with a continuous Class I vapor retarder in accordance with the International Building Code. All joints of the vapor retarder shall overlap by 6 inches (153 mm) and be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches (163 mm) up the stem wall and shall be attached to the stem wall.

(Add "in accordance with the International Building Code") Posted 5/14/2009

402.4.2.1 TESTING OPTION

Building envelope tightness and insulation installation shall be considered acceptable when tested air leakage is less than seven air changes per hour (ACH) when tested with a blower door at a pressure of ~~33.5 psf~~ 50 pascals (50 Pa 1 psf). Testing shall occur after rough in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation and combustion appliances.

(Change 33.5 psf (50 Pa) to 50 pascals (1 psf). No change to remainder of section) Posted 5/14/2009

402.5 MAXIMUM FENESTRATION U-FACTOR AND SHGC (MANDATORY)

The area-weighted average maximum fenestration U-factor permitted using trade-offs from Section 402.1.4 or ~~404~~ 405 shall be 0.48 in Zones 4 and 5 and 0.40 in Zones 6 through 8 for vertical fenestration, and 0.75 in Zones 4 through 8 for skylights. The area-weighted average maximum fenestration SHGC permitted using trade-offs from Section 405 in Zones 1 through 3 shall be 0.50.

(Change Section 404 to 405) Posted 5/14/2009

**TABLE 405.5.2(1)—continued
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS**

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Service water heating ^{g, i, j, k}	As proposed Use: same as proposed design	As proposed Gal/day = 30 + (10 x N _{br})

(Portions of Table not shown remain unchanged. Remove "g", "i", and "j" from the Column: Building Component. Add "h".) Posted 5/14/2009

403.9.1

POOL HEATERS

All pool heaters shall be equipped with a readily *accessible* on-off switch to allow shutting off the heater without adjusting the thermostat setting. Pool heaters fired by natural gas or LPG shall not have continuously burning pilot lights.

(Add "or LPG") Posted 5/14/2009

CHAPTER 5
COMMERCIAL ENERGY EFFICIENCY

~~TABLE 505.6.2~~
~~LIGHTING POWER DENSITIES FOR BUILDING EXTERIORS~~

(Delete Table 505.6.2) Posted 6/7/2011

506.5.2
THERMAL BLOCKS

The *standard reference design* and *proposed design* shall be analyzed using identical thermal blocks as required in Section ~~506.5.1.1~~ 506.5.2.1, ~~506.2.2~~ 506.5.2.2 or 506.5.2.3.

(Change Section 506.5.1.1 to 506.5.2.1 and Section 506.2.2 to Section 506.5.2.2) Posted 5/14/2009

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P

PARALLEL PATH CALCULATION.....~~402.2.4~~ 402.2.5

(In the Index, Parallel Path Calculation refers to Section 402.2.4, this should be changed to Section 402.2.5) Posted 5/14/2009

V

VAPOR RETARDER.....402.2.9

Defined.....~~202~~

(In the Index, Defined should be removed from under Vapor Retarder) Posted 5/14/2009

**CHAPTER 4
RESIDENTIAL ENERGY EFFICIENCY**

**TABLE 402.1.3
EQUIVALENT *U*-FACTORS^a**

CLIMATE ZONE	BASEMENT WALL <i>U</i>-FACTOR^d
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a. through c. (No change to current text)

~~d. Foundation *U*-factor requirements shown in Table 402.1.3 include wall construction and interior air films but exclude soil conductivity and exterior air films. *U*-factors for determining code compliance in accordance with Section 402.1.4 (total UA alternative) of Section 405 (Simulated Performance Alternative) shall be modified to include soil conductivity and exterior air films.~~

(Portions of table not shown remain unchanged. Delete note d entirely) Posted 3/11/2009

**CHAPTER 5
COMMERCIAL ENERGY EFFICIENCY**

**TABLE 502.2(1)
BUILDING ENVELOPE REQUIREMENTS – OPAQUE ASSEMBLIES**

CLIMATE ZONE	1		2		4 EXCEPT MARINE		5 AND MARINE 4		6	
	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R
	Walls, Above Grade									
Mass	NR	R-5.7ci ^c	R-5.7ci ^c	R-7.6ci	R-9.5ci ^e	R-11.4ci			R-13.3ci	R-15.2ci
Metal framed	R-13	R-13	R-13 + R-7.5	R-13 + 7.5ci	R-13 + R-7.5	R-13 + R-7.5ci			R-13 + R-7.5ci	R-13 + R-7.5ci
Wood framed and other	R-13	R-13	R-13	R-13	R-13	R-13 + R-3.8ci	R-13 + R-3.8ci	R-13 + R-3.8	R-13 + R-7.5	R-13 + R-7.5
	Walls, Below Grade									
Below grade wall ^d									NR R-7.5ci	R-7.5ci

(Portions of table not shown remain unchanged. Add note c under Climate Zone 1, Walls, Above Grade, "Group R" and also Climate Zone 2, Walls Above Grade, "All other." Delete note c under Climate Zone 4, Walls, Above Grade, "All other." Delete "NR" under Climate Zone 6, Walls, Below Grade, "All other.") Posted 3/11/2009

**TABLE 502.3
BUILDING ENVELOPE REQUIREMENTS: FENESTRATION**

CLIMATE ZONE	1
Metal framing with or without thermal break	
Curtain wall/storefront U-factor	1.0 1.2

(Portions of table not shown remain unchanged. Under Climate Zone 1, Metal framing with or without thermal break, Curtain wall/storefront U-factor, change 1.0 to read 1.2) Posted 3/11/2009

CHAPTER 6
REFERENCED STANDARD

IESNA

90.1-~~2004~~ 2007

(Under IESNA, change edition year from 2004 to 2007) Posted 3/11/2009