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

1st and 2nd PRINTING (June 6, 2012)

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

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Supported by exterior wall......R502.2.2 <u>R507</u> Wood/plastic composite boards......R502.1.7, R502.2.2.4 <u>R507.3</u>

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

1st PRINTING (6-6-12)

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P: Parallel Path CalculationN1102.2.6 (R402.2.6)

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

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1st and 2nd PRINTING (June 6, 2012)

CHAPTER 1 SCOPE AND ADMINISTRATION

R102.4.1 <u>Differences</u> <u>Conflicts</u>. Where <u>differences</u> <u>conflicts</u> occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

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

1st and 2nd PRINTING (June 6, 2012)

CHAPTER 2 DEFINITIONS

WIND-BORNE DEBRIS REGION. Areas within hurricane-prone regions as designated in accordance with Figure R302.1(4)C R301.2(4)C.

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

Applicable to 1st through 12th PRINTINGS (This Errata Posted January 21, 2022)

CHAPTER 3 BUILDING PLANNING

L, R317.2 Quality Mark

Lumber and plywood required to be pressure-preservative treated in accordance with Section R318.1 R317.1 shall bear the quality mark of an approved inspection agency that maintains continuing supervision, testing and inspection over the quality of the product and that has been approved by an accreditation body that complies with the requirements of the American Lumber Standard Committee treated wood program.

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

1st through 5th PRINTING (4-15-14)

CHAPTER 3 BUILDING PLANNING

Figure R301.2(5) $$^2_{\rm GROUND}$ SNOW LOADS, $P_g,$ FOR THE UNITED STATES (lb/ft)

NOTES ADDED

For SI: 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 mile = 1.61 km.

- a. In CS areas, site-specific Case Studies are required to establish ground snow loads. Extreme local variations in ground snow loads in these areas preclude mapping at this scale.
- b. Numbers in parentheses represent the upper elevation limits in feet for the ground snow load values presented below. Site-specific case studies are required to establish ground snow loads at elevations not covered.

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

1st and 2nd PRINTING (10-8-12)

CHAPTER 3 BUILDING PLANNING

TABLE R301.5 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS (In pounds per square foot)

e. See Section R502.2.2 R507.1 for decks attached to exterior walls.

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

1st and 2nd PRINTING (9-26-12)

CHAPTER 3 BUILDING PLANNING

R301.2.2.2.5, Item 7

7. When stories above grade plane partially or completely braced by wood wall framing in accordance with Section R603 or steel wall framing in accordance with Section R603 include masonry or concrete construction. When this irregularity applies, the entire story shall be designed in accordance with accepted engineering practice

Exception: Fireplaces, chimneys and masonry veneer as permitted by this code. When this irregularity applies, the entire story shall be designed in accordance with accepted engineering practice

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

1st and 2nd PRINTING (6-6-12)

CHAPTER 3 BUILDING PLANNING

TABLE R301.2.2.1.1 SEISMIC DESIGN CATEGORY DETERMINATION

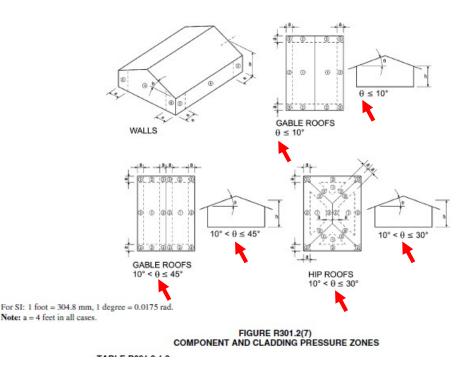
CALCULATED S _{DS}	SEISMIC DESIGN CATEGORY
S _{DS} ≤0.17g	A
0.17g< S _{DS} ≤ 0.33g	В
0.33g< S _{DS} ≤ 0.50g	С
0.50g< S _{DS} ≤ 0.67g	D ₀
0.67g< S _{DS} ≤ 0.83g	D ₁
0.83g< S _{DS} ≤ 1.17g <u>1.25g</u>	D ₂
<u>1.17g 1.25g</u> < S _{DS}	E

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

1st PRINTING (3-27-12)

CHAPTER 3 BUILDING PLANNING

FIGURE R301.2(7)



R301.2.2.1.1 Alternate determination of seismic design category. The Seismic Design Categories and corresponding Short Period Design Spectral Response Accelerations, *SDS* shown in Figure R301.2(2) are based on soil Site Class D, as defined in Section 1613.5.2-1613.3.2 of the *International Building Code*. If soil conditions are other than Site Class D, the Short Period Design Spectral Response Accelerations, *SDS*, for a site can be determined according to Section 1613.5 of the *International Building Code*. The value of *SDS* determined according to Section 1613.5 of the *International Building Code* is permitted to be used to set the seismic design category according to Table R301.2.2.1.1, and to interpolate between values in Tables R602.10.1.2(2) R602.10.1.3(3), R603.9.2(1) and other seismic design requirements of this code.

R310.3 Bulkhead enclosures. Bulkhead enclosures shall provide direct access to the *basement*. The bulkhead enclosure with the door panels in the fully open position shall provide the minimum net clear opening required by Section R310.1.1. Bulkhead enclosures shall also comply with Section R311.7.8.2 R311.7.10.2.

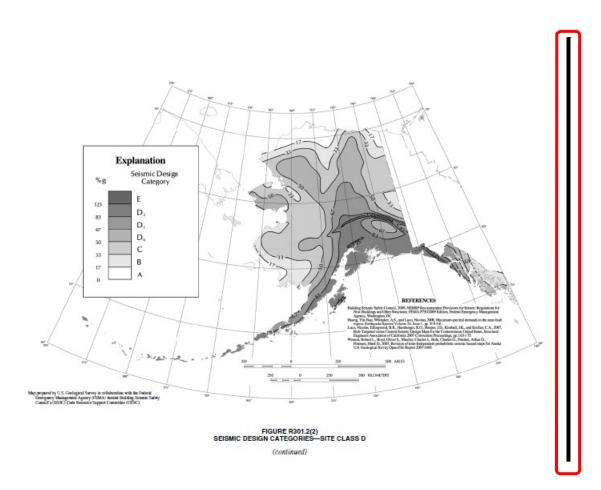
R311.7.1 Width. Stairways shall not be less than 36 inches (914 mm) in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4.5 inches (114 mm) on either side of the stairway and the minimum clear width of the stairway at and below the handrail height, including treads and landings, shall not be less than 31 1/2 inches (787 mm) where a handrail is installed on one side and 27 inches (698 mm) where handrails are provided on both sides.

Exception: The width of spiral stairways shall be in accordance with Section R311.7.9.1 R311.7.10.1.

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

1st and 2nd PRINTING (2-28-12)

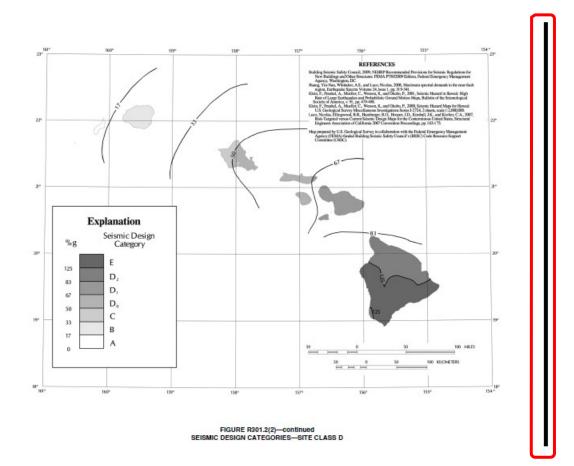
CHAPTER 3 BUILDING PLANNING



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

1st and 2nd PRINTING (2-28-12)

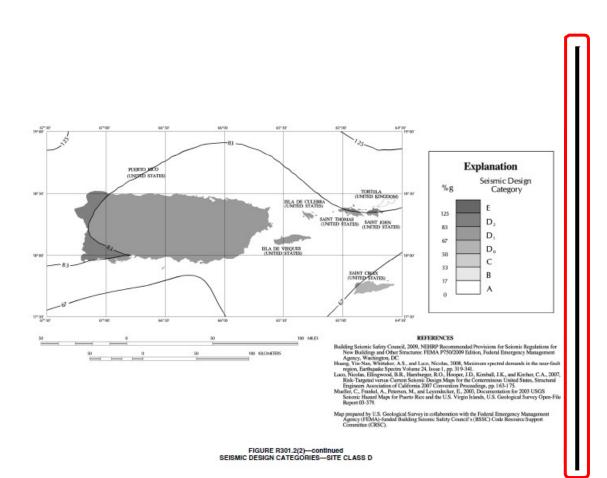
CHAPTER 3 BUILDING PLANNING



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

1st and 2nd PRINTING (2-28-12)

CHAPTER 3 BUILDING PLANNING



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

1st and 2nd PRINTING (2-28-12)

CHAPTER 3 BUILDING PLANNING

FIGURE R301.2(2)

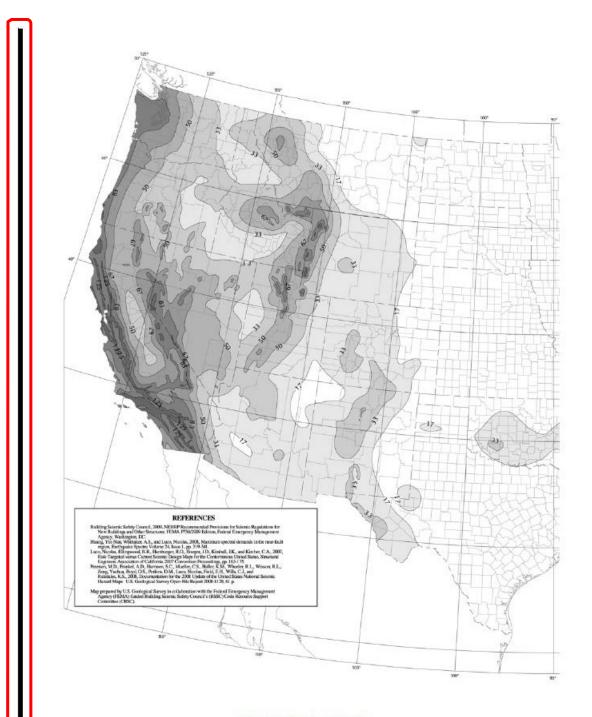
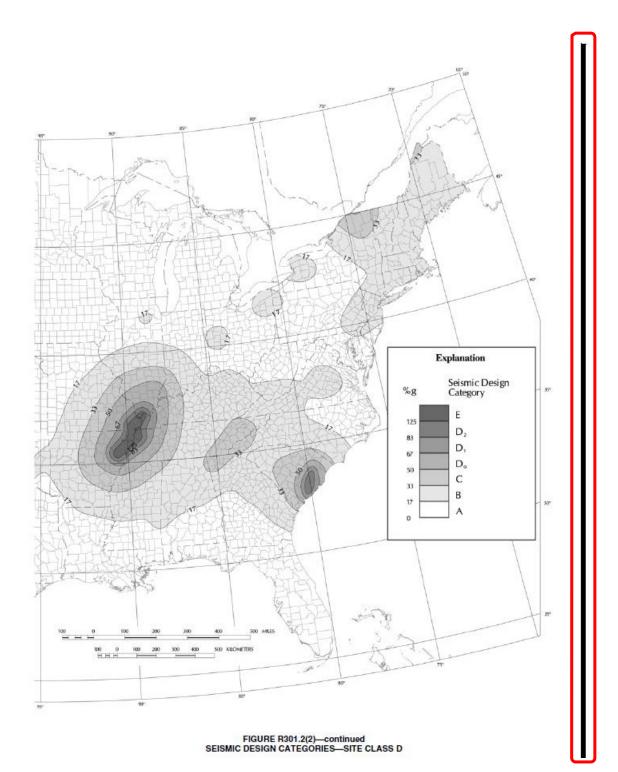


FIGURE R301.2(2)—continued SEISMIC DESIGN CATEGORIES—SITE CLASS D

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

1st and 2nd PRINTING (2-28-12)

CHAPTER 3 BUILDING PLANNING

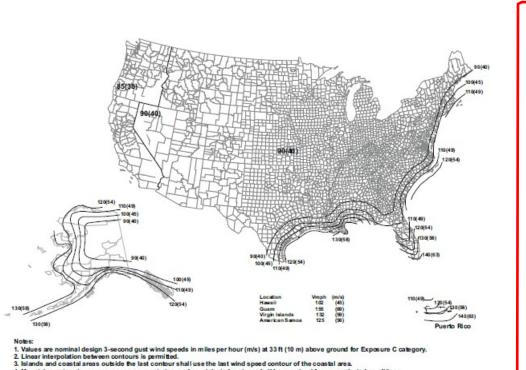


(Portions of text and tables not shown are unaffected by the errata)

1st and 2nd PRINTING (2-28-12)

CHAPTER 3 BUILDING PLANNING

FIGURE R301.2(4)A



ir merpolanon between contours is permitted. ds and coastal areas outside the last contour shall use the last wind speed contour of the coastal area. Itaino us terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind condition

FIGURE R301.2(4)A BASIC WIND SPEEDS

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

1st and 2nd PRINTING (2-28-12)

CHAPTER 3 BUILDING PLANNING

FIGURE R301.2(4)B

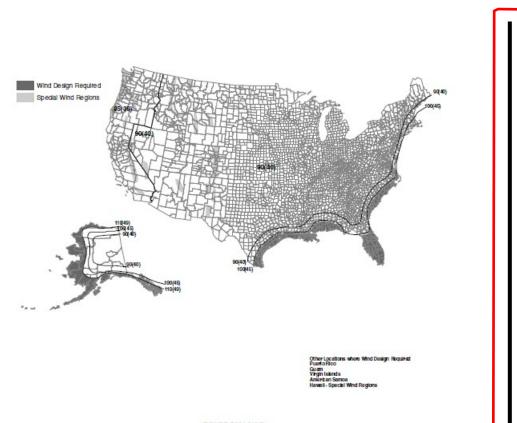
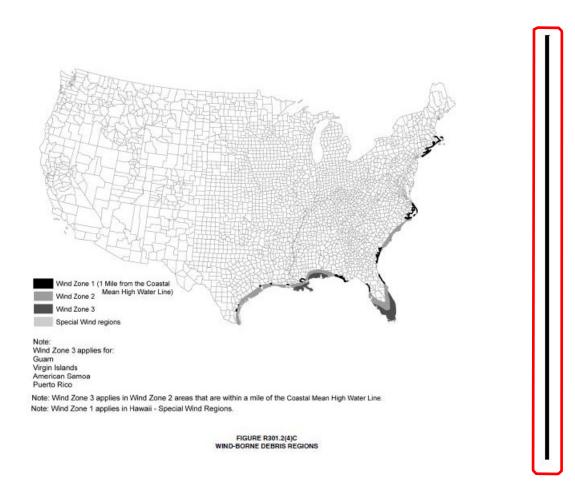


FIGURE R301.2(4)B REGIONS WHERE WIND DESIGN IS REQUIRED

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

1st and 2nd PRINTING (2-28-12)

CHAPTER 3 BUILDING PLANNING



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

1st PRINTING (12-5-11)

CHAPTER 3

R322.2.3 Foundation design and construction. Foundation walls for all buildings and structures erected in flood hazard areas shall meet the requirements of Chapter 4.

Exception: Unless designed in accordance with Section R404:

- 1. The unsupported height of 6-inch (152 mm) plain masonry walls shall be no more than 3 feet (914 mm).
- 2. The unsupported height of 8-inch (203 mm) plain masonry walls shall be no more than 4 feet (1219 mm).
- 3. The unsupported height of 8-inch (203 mm) reinforced masonry walls shall be no more than 8 feet (2438 mm).

For the purpose of this exception, unsupported height is the distance from the finished grade of the under-floor space to the top of the wall.

R322.3.2 Elevation requirements.

1. All buildings and structures erected within coastal high-hazard areas shall be elevated so that the lowest portion of all structural members supporting the lowest floor, with the exception of piling, pile caps, columns, grade beams and bracing, is:

1.1. Located at or above the design flood elevation, if the lowest horizontal structural member is oriented parallel to the direction of wave approach, where parallel shall mean less than or equal to 20 degrees (0.35 rad) from the direction of approach, or

ALIGNMENT

1.2. Located at the base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher, if the lowest horizontal structural member is oriented perpendicular to the direction of wave approach, where perpendicular shall mean greater than 20 degrees (0.35 rad) from the direction of approach.

2. Basement floors that are below grade on all sides are prohibited.

3. The use of fill for structural support is prohibited.

4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.

Exception: Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R322.3.4 and R322.3.5.

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

1st PRINTING (11-29-11)

CHAPTER 3 BUILDING PLANNING

Figure R301.2(5) corrections as follows:

- 1. At the center of the State of North Dakota, the ground snow load shown as 36 should read 35.
- 2. At the State of Pennsylvania, the elevation shown as 700 (2 places) should read 1700.

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

Applicable to 1st through 11th PRINTINGS (July 19, 2019)

CHAPTER 4 FOUNDATIONS

		AIR-FREEZING INDEX											
STATE	1500 or less	2000	2500	3000	3500	4000							
Montana	Mineral	Broadwater,Golden Valley, Granite, Lake, Lincoln, Missoula, Ravalli, Sanders, Sweet Grass	Big Horn, Carbon, Jefferson, Judith Basin, Lewis and Clark, Meagher, Musselshell, Powder River, Powell, Silver Bow, Stillwater, Westland	Carter, Cascade, Deer Lodge, Falcon, Fergus, Flathead, <u>Gallanting</u> <u>Gallatin</u> , Glacier, Madison, Park, Petroleum, Ponder, Rosebud, Teton, Treasure, Yellowstone	Beaverhead,Blaine, Chouteau, Custer, Dawson, Garfield, Liberty, McCone, Prairie, Toole, Wibaux	Daniels, Hill, Phillips, Richland, Roosevelt, Sheridan, Valley							

TABLE R403.3(2) AIR-FREEZING INDEX FOR U.S. LOCATIONS BY COUNTY

Portions of table not shown remain unchanged.

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

 $1^{st}\ through\ 6^{th}\ PRINTING\ (April\ 7,\ 2015\)$

CHAPTER 4 FOUNDATIONS

FIGURE R403.4(1):

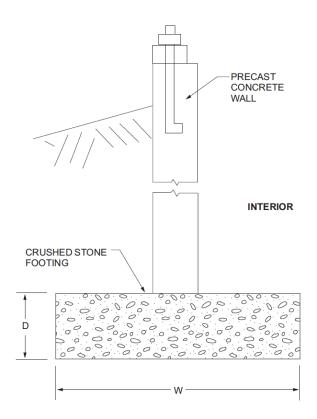


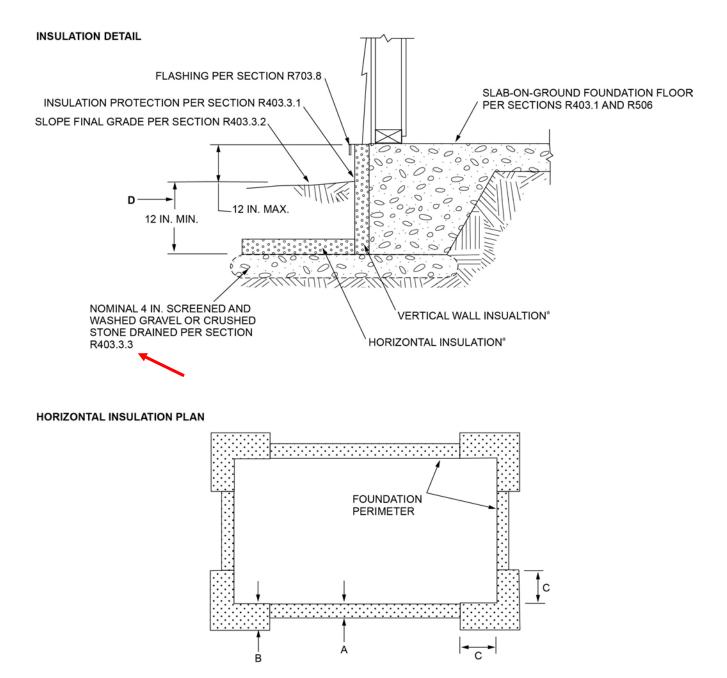
FIGURE R403.4(1) BASEMENT OR CRAWL SPACE WITH PRECAST FOUNDATION WALL BEARING ON CRUSHED STONE

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





FIGURE R403.3(1):



For SI: 1 inch = 25.4 mm. a. See Table R403.3(1) for required dimensions and *R-values* for vertical and horizontal insulation and minimum footing depth

FIGURE R403.3(1) INSULATION PLACEMENT FOR FROST PROTECTED FOOTINGS IN HEATED BUILDINGS

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

1st and 2nd PRINTING (6-4-14)

CHAPTER 4 FOUNDATIONS

R402.2 Concrete. Concretespecified in Section <u>4.4.2</u> 4.2.3 of ACI 318. Materials used to produce concrete and testing thereof shall comply with the applicable standards listed in Chapter 3 of ACI 318 or ACI 332.

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

1st through 3rd PRINTING (4-27-13)

CHAPTER 4 FOUNDATIONS

R408.3 Unvented crawl space. R408.3 Unvented crawl space. Ventilation openings in under-floor spaces specified in Sections R408.1 and R408.2 shall not be required where:

- 1. Exposed earth is covered with a continuous Class I vapor retarder. Joints of the vapor retarder shall overlap by 6 inches (152 mm) and shall be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches (152 mm) up the stem wall and shall be attached and sealed to the stem wall or insulation; and
- 2. One of the following is provided for the under-floor space:
 - 2.1. Continuously operated mechanical exhaust ventilation at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7m²) of crawlspace floor area, including an air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1103.2.1 N1102.2.10 of this code;
 - 2.2. Conditioned air supply sized to deliver at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m²) of under-floor area, including a return air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2 N1102.2.10 of this code;
 - 2.3. Plenum in existing structures complying with Section M1601.5, if under-floor space is used as a plenum.

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

1st and 2nd PRINTING (12-04-12)

CHAPTER 4 FOUNDATIONS

TABLE R403.4

TABLE R403.4

		LOAD BEARING VALUE OF SOIL (psf)															
			15	00		2000			3000			4000					
			MH, CH	, CL, ML		SC, GC, SM, GM, SP, SW			GP, GW								
		Wall width (inches)				Wall width (inches)			Wall width (inches)			Wall width (inches)					
		6	8	10	12	6	8	10	12	6	8	10	12	6	8	10	12
						Conv	ontional	light-fra	me cons	truction							
1-story	1100 plf	6	4	4	4	6	4	4	4	6	4	4	4	6	4	4	4
2-story	1800 plf	8	6	4	4	6	4	4	4	6	4	4	4	6	4	4	- 4
3-story	2900 plf	16	14	12	10	10	8	6	6	6	- 4	4	- 4	6	4	4	4
				4-incl	h brick v	encer ov	er light-	frame or	8-inch h	ollow co	increte r	nasonry					
1-story	1500 plf	6	4	4	4	6	4	4	4	6	4	4	- 4	6	4	4	- 4
2-story	2700 plf	14	12	10	8	10	8	6	4	6	4	4	4	6	4	4	- 4
3-story	4000 plf	22	22	20	18	16	14	12	10	10	8	6	4	6	4	4	- 4
	· · · · ·					8-inc	h solid o	r fully g	routed m	asonry							
1-story	2000 plf	10	8	6	4	6	4	4	4	6	4	4	4	6	4	4	- 4
2-story	3600 plf	20	18	16	16	14	12	10	8	8	6	4	- 4	6	4	4	- 4
3-story	5300 plf	32	30	28	26	22	22	20	18	14	12	10	8	10	8	6	4

1 plf = 14.6 N/m 1 pounds per square foot = 47.9 N/m^2

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

1st and 2nd PRINTING (06-06-12)

CHAPTER 4 FOUNDATIONS

Table R403.3(2)

TABLE R403.3(2)---continued AIR-FREEZING INDEX FOR U.S. LOCATIONS BY COUNTY

STATE	AIR-FREEZING INDEX									
STATE	1500 or less	2000	2500	3000	3500	4000				
Virginia	All counties									
Utah	All counties not listed	Box Elder, Morgan, Weber	Garfield, Salt Lake, Summit	Carbon, Daggett, Dushesne, Rich, Sanpete, Uintah, Wasatch						
Washington	All counties not listed	<u>Chelan,</u> Douglas, Ferry, <u>Okanogan</u>		=						
West Virginia	All counties									

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

1st and 2nd PRINTING (6-6-12)

CHAPTER 5 FLOORS

TABLE 507.2.1

TABLE 507.2.1 PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS

MINUMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS											
	TOPE EDGE BOTTOM EDGE ENDS ROW SPACING										
Ledger ^a	2 inches ^d	<u>¼</u> <u>¾</u> inch	2 inches ^⁵	1 5/8 inches ^⁵							
Band Joist ^c	³ ∕₄ inch	2 inches	2 inches⁵	1 5/8 inches ^b							

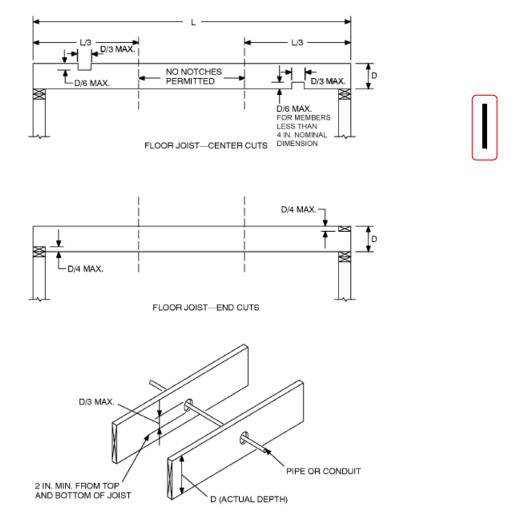
Footnotes remain unchanged.

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

1st PRINTING (3-27-12)

CHAPTER 5 FLOORS

FIGURE R502.8



3I: 1 inch = 25.4 mm.

FIGURE R502.8 CUTTING, NOTCHING AND DRILLING

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

Applicable to the 1st through 13th PRINTINGS (This Errata Posted: April 22, 2022

Chapter 6 WALL CONSTRUCTION

 TABLE R611.9(11)

 WOOD-FRAMED ROOF COLD FORMED STEEL

 TO TOP OF CONCRETE WALL, FRAMING

 PERPENDICULAR^{a,b,c,d,e}

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

Applicable to 1st through 12th PRINTINGS (This Errata Posted January 14, 2022)

CHAPTER 6 WALL CONSTRUCTION

R602.6 Drilling and notching of studs.....

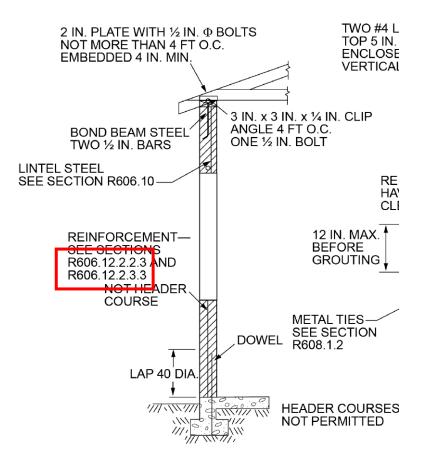
2. Drilling. Any stud.... the edge of the hole is not more less than 5/8 inch....

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

1st through 6th PRINTING (POSTED April 4, 2015)



Figure R606.11(2)

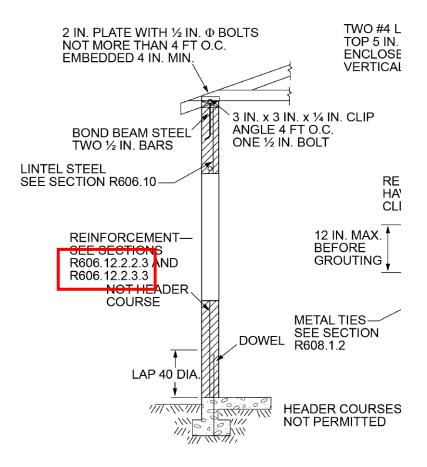


(Portions of text and tables not shown are unaffected by the errata)

1st through 5th PRINTING (April 7, 2015)

CHAPTER 6 WALL CONSTRUCTION

Figure R606.11(2)



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

1st through 4th PRINTING (POSTING DATE)

CHAPTER 6 WALL CONSTRUCTION

TABLE R603.3.1 WALL TO FOUNDATION OR FLOOR CONNECTION REQUIREMENTS^{a,b}

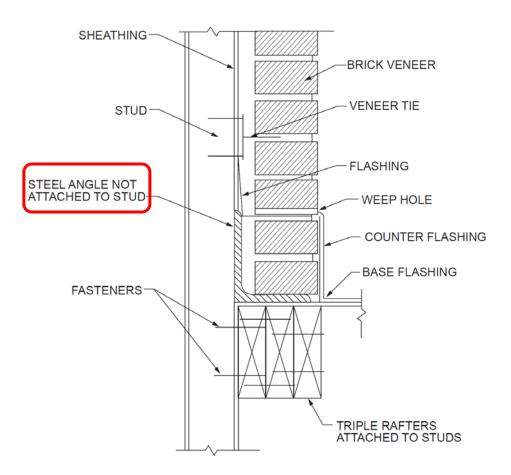
FRAMING			WIND SPEED (MPH	I) AND EXPOSURE			
CONDITION	85 B	90 B	100 B 85 C	110 B 90 C	100 C	< 110 C	
Wall bottom track to floor per Figure R603.3.1(1)	1-No. 8 screw at 12" o.c.	2-No. 8 screws at 12" o.c.	2 No. 8 screws at 12" o.c.				
Wall bottom track to foundation per Figure R603.3.1(2) ^d	¹ / ₂ " minimum diameter archor bolt at 6' o.c.	$^{1/2}$ " minimum diameter a chor bolt at 6' o.c.	$^{1/2}$ " minimum diameter a chor bolt at 4' o.c.	1/2'' minimum diameter a chor bolt at 4' o.c.	¹ / ₂ " minimum diameter archor bolt at 4' o.c.	¹ / ₂ " minimum diameter a chor bolt at 4' o.c.	
Wall bottom track to wood sill per Figure R603.3.1(3)	Steel plate spaced at 4' o.c., with 4- No. 8 screws and 4-10d or 6-8d common nails	Stell plate spaced at 4' o.c., with 4- No. 8 screws and 4-10d or 6-8d common nails	Steel plate spaced at 3' o.c., with 4- No. 8 screws and 4-10d or 6-8d common nails	Stell plate spaced at 3' o.c., with 4- No. 8 screws and 4-10d or 6-8d common nails	Stell plate spaced at 2' o.c., with 4- No. 8 screws and 4-10d or 6-8d common nails	Stell plate spaced at 2' o.c., with 4- No. 8 screws and 4-10d or 6-8d common nails	
Wind uplift connector strength to 16" stud spacing ^c	NR	NR	NR	NR	NR	65 lb per foot of wall length	
Wind uplift connector strength for 24" stud spacing ^c	NR	NR	NR	NR	NR	100 lb per foot of wall length	

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

1st & 2nd PRINTING (This Errata Posted September 18, 2018)

CHAPTER 7 WALL COVERING

Figure R703.7.2.2



SUPPORT BY ROOF MEMBERS

FIGURE R703.7.2.2 EXTERIOR MASONRY VENEER SUPPORT BY ROOF MEMBERS

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

1st through 6th PRINTING (November 7, 2014)

CHAPTER 7 WALL COVERING

Table R702.1(3)

CEMENT PLASTER PROPORTIONS, PARTS BY VOLUME							
		CEMENTITIOUS MATERIALS					
COAT	CEMENT PLASTER TYPE	Portland Cement Type I, II or III or Blended Cement Type IP, I (PM), IS or I (SM)	Plastic Cement	Masonry Cement Type M, S or N	Lime	AGGREGATE PER SUM OF SEPARATE VOLUMES OF CEMENTITIOUS MATERIALS ^b	
	Portland or blended	1			³ / ₄ - 1 ¹ / ₂ ^a	2 ¹ / ₂ - 4	
First	Masonry			<u>1</u>	- <mark>-1</mark>	21/2 - 4	
	Plastic		1			21/2 - 4	

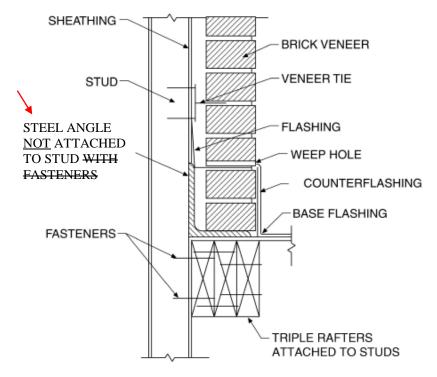
TABLE R702.1(3) CEMENT PLASTER PROPORTIONS, PARTS BY VOLUME

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

1st and 2nd PRINTING (6-4-14)

CHAPTER 7 WALL COVERING

Figure R703.7.2.2



SUPPORT BY ROOF MEMBERS

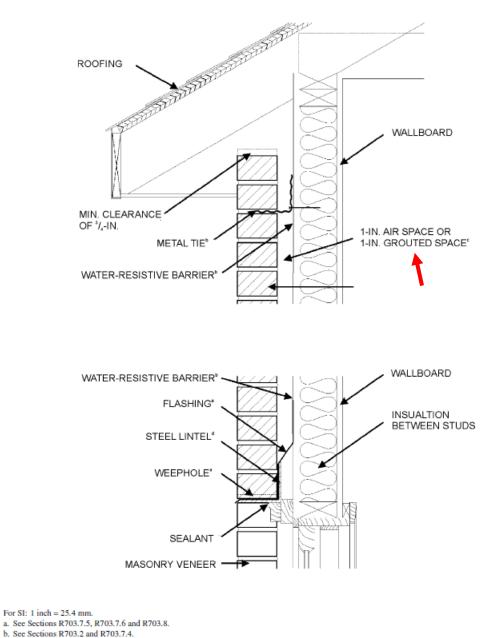
FIGURE R703.7.2.2 EXTERIOR MASONRY VENEER SUPPORT BY ROOF MEMBERS

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

1st PRINTING (3-27-12)

CHAPTER 7 WALL COVERING

FIGURE R703.7



c. See Section R703.7.4.2 and Table R703.7.4.

d. See Section R703.7.3.

FIGURE R703.7—continued MASONRY VENEER WALL DETAILS

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

TABLE R703.7.4

TABLE R703.7.4 TIE ATTACHMENT AND AIR SPACE REQUIREMENTS							
BACKING AND TIE MINIMUM TIE MINIMUM TIE FASTENER* AIR SPACE							
Wood stud backing with corrugated sheet metal	22 U.S. gage (0.0299 in.) × ⁷ / ₈ in. wide	8d common nail ^b (2 ¹ / ₂ in. × 0.131 in.)	Nominal 1 in. between sheathing and veneer				
Wood stud backing with metal strand wire	W1.7 (No. 9 U.S. gage; 0.148 in.) with hook embedded in mortar joint	8d common nail ^b (2 ¹ / ₂ in. × 0.131 in.)	Minimum nominal 1 in. between sheathing and veneer	Maximum 41/2 in. between backing and veneer			
Cold-formed steel stud backing with adjustable metal strand wire	w1.7 (No. 9 U.S. gage; 0.148 in.) with hook		Minimum nominal 1 in. between sheathing and veneer	Maximum 4 ¹ / ₂ in. between backing and veneer			

For SI: 1 inch = 25.4 mm.

a. In Seismic Design Category D_0 , D_1 or D_2 , the minimum tie fastener shall be an 8d ring-shank nail ($2^1/_2$ in. $\times 0.131$ in.) or a No. 10 screw extending through the steel framing a minimum of three exposed threads.

All fasteners shall have rust-inhibitive coating suitable for the installation in which they are being used, or be manufactured from material not susceptible to corrosion.

(Portions of text and tables not shown are unaffected by the errata) **1st through 7th PRINTING (POSTED May 19, 2015)**

CHAPTER 8 ROOF-CEILING CONSTRUCTION

R804.3.8.1 Ceiling diaphragms. At gable end walls..... 33 mils (0.84 mm).

The ceiling diaphragms shall be ...field. Multiplying the required lengths in Tables R804.3.8 (1) and R804.3.8 (2) for gypsum board sheathed ceiling diaphragms shall be permitted to be multiplied by 0.35 shall be permitted if all panel edges are blocked. Multiplying.....

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

1st through 4th PRINTING (11-7-13)

CHAPTER 8 ROOF-CEILING CONSTRUCTION

R806.5 Unvented attic and unvented enclosed rafter assemblies. Unvented....

- 1. The unvented...
- 2. No interior...
- 3. Where wood...
- 4. In Climate Zones 5, 6, 7 and 8, any *air-impermeable insulation* shall be a Class II vapor retarder, or shall have a Class III vapor retarder coating or

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

1st through 3rd PRINTING (4-27-13)

CHAPTER 8 ROOF-CEILING CONSTRUCTION

TABLE R806.5 INSULATION FOR CONDENSATION CONTROL

CLIMATE ZONE	MINIMUM RIGID BOARD ON AIR-IMPERMEABLE INSULATION <i>R</i> -VALUE ^a
2B and 3B tile roof only	0 (none required)
1, 2A, 2B, 3A, 3B, 3C	R-5
4C	R-10
4A, 4B	R-15
5	R-20
6	R-25
7	R-30
8	R-35

a. Contributes to but does not supersede the requirements in Section <u>N1103.2.1 N1102</u>.

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

1st PRINTING (3-27-12)

CHAPTER 8 WALL COVERING

FIGURE R802.5.1

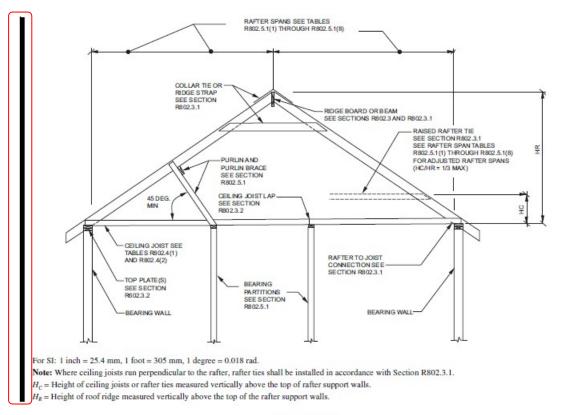
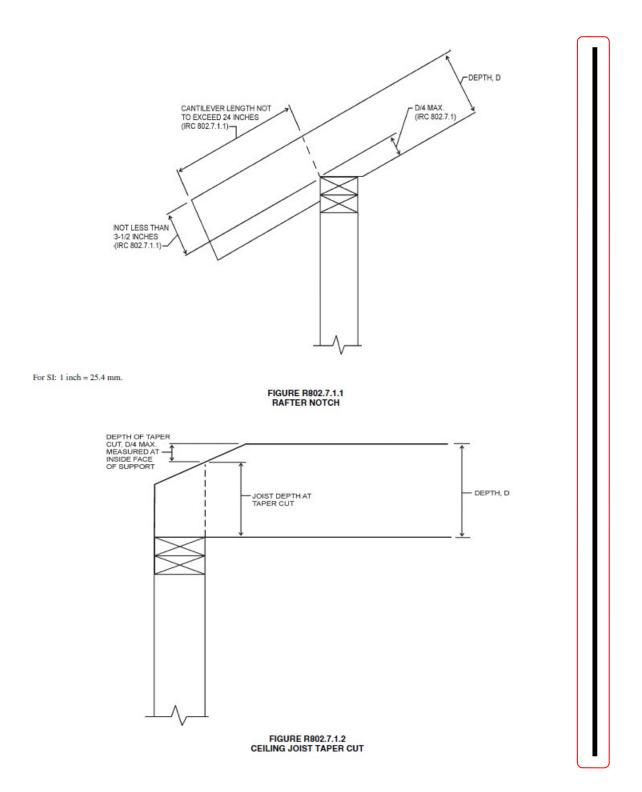


FIGURE R802.5.1 BRACED RAFTER CONSTRUCTION

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

FIGURE 802.7.1.2



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

1st through 4th PRINTING (1-14-14)

CHAPTER 9 ROOF ASSEMBLIES

R905.2.8.5 Drip Edge. A drip edge shall be provided....... Underlayment shall be installed over the drip edge along eaves and under the <u>underlayment</u> <u>drip edge</u> on gables. Unless......

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

AFFECTS 1st through 9th PRINTING (THIS ERRATA POSTED September 28, 2016)

CHAPTER 11 ENERGY EFFICIENCY

N1103.5 (R403.5.1) Whole-house mechanical ventilation system fan efficacy. <u>When installed to</u> <u>function as a whole-house</u> Mechanical ventilation system fans shall meet the efficacy requirements of Table N1103.5.1.

Exception: Where <u>whole-house</u> mechanical ventilation fans are integral to tested and listed HVAC equipment, they shall be powered by an electronically commutated motor.

TABLE N1103.5.1 (R403.5.1) MECHANICAL VENTILATION SYSTEM FAN EFFICACY

	AIR FLOW RATE	MINIMUM EFFICACY ^a	AIR FLOW RATE
FAN LOCATION	MINIMUM (CFM)	(CFM/WATT)	MAXIMUM (CFM)
Range hoods	Any	2.8 cfm/watt	Any
In-line fan	Any	2.8 cfm/watt	Any
Bathroom, utility room	10	1.4 cfm/watt	<90
Bathroom, utility room	90	2.8 cfm/watt	Any

For SI: 1 cfm = 28.3 L/min.

a. When tested in accordance with HVI Standard 916

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

1st and 2nd PRINTING (9-25-12)

CHAPTER 11 ENERGY EFFICIENCY

N1101.7 (R102.1.1) Above code programs. The *building official*...The requirements identified as "mandatory" in Chapters 4 and 5 of this code this chapter, as applicable, shall be met.

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

1st and 2nd PRINTING (6-6-12)

CHAPTER 11[RE] ENERGY EFFICIENCY

Effective use of the International Residential Code

Chapter 11 [RE] Energy Efficiency. The purpose of Chapter 11 [RE] is to provide minimum design requirements That will promote efficient utilization of energy in buildings. The requirements are directed toward the design of building envelopes with adequate thermal resistance and low air leakage, and toward the design and selection of mechanical, water heating, electrical and illumination systems that promote effective use of depletable energy resources. The provisions of Chapter 11 [RE] are duplicated from the International Energy Conservation Code – Residential Provisions, as applicable for buildings which fall under the scope of the IRC. (Rest of the information remains the same)

TABLE N1102.1.3 (R402.1.3) EQUIVALENT U-FACTORS^a

c. Basement wall U-factor of 0.360 in warm-humid locations as defined by Figure 301.1-N1101.1 (R301.1) and Table 301.1-N1101.10 (R301.1).

Table and other footnotes remain unchanged.

SECTION N1101.9 (R202) Defined terms. The following words and terms shall, for the purposes of this chapter, have the meanings shown herein.

CURTAIN WALL. Fenestration products used to create an external nonload-bearing wall that is designed to separate the exterior and interior environments.

ENCLOSED SPACE. A volume surrounded by solid surfaces such as walls, floors, roofs, and open able devices such as doors and operable windows.

F-FACTOR. The perimeter heat loss factor for slab-on-grade floors (Btu/h x ft x °F) W/(m x K)]

N1103.2.2 (R403.2.2) Sealing (Mandatory). Ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with <u>either the *International Mechanical Code* or</u> Section M1601.4.1 of this code <u>as applicable</u>.

Portions of the section not shown remain unchanged

N1103.5 (R403.5) Mechanical ventilation (Mandatory). The building shall be provided with ventilation that meets the requirements of Section M1507 of this code <u>or *International Mechanical Code*</u>, as applicable, or with other approved means of ventilation. Outdoor air intakes and exhaust shall have automatic or gravity dampers that close when the ventilating system is not operating.

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

TABLE N1105.5.2(1) (R405.5.2(1)) SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS

BUILDING COMPONENT	STANDARD REFERENCE DESIGN	PROPOSED DESIGN
Structural mass	For masonry floor slabs, 80% of floor area covered by R-2 carpet and pad, and 20% of floor directly exposed to room air.	As proposed
	For masonry basement walls, as proposed, but with insulation required by Table $\underline{N1102.1.3}$ (<u>R</u> 402.1.3) located on the interior side of the walls.	As proposed
	For other walls, for ceilings, floors, and interior walls, wood frame construction.	As proposed

Portions of the table not shown remain unchanged.

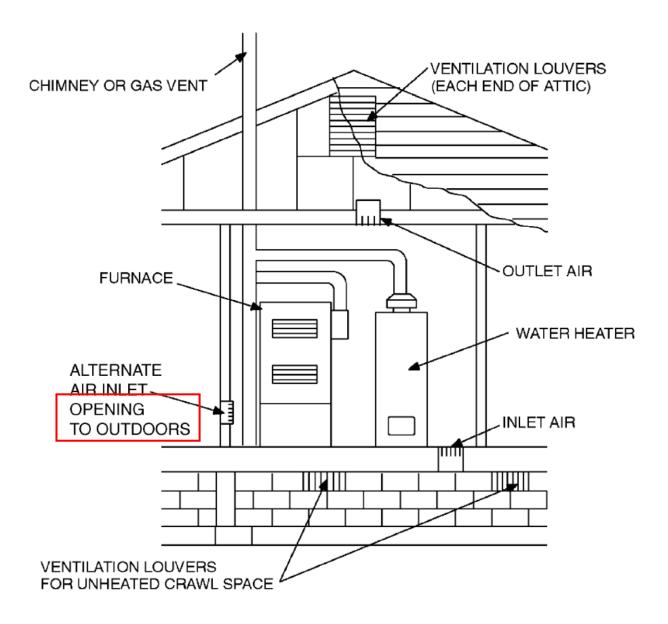
(Portions of text and tables not shown are unaffected by the errata)

1st through 6th PRINTING (POSTED April 7, 2015)

CHAPTER 24 FUEL GAS

G2407.5.1 (304.5.1) Standard method. The minimum required volume shall be 50 cubic feet per 1,000 Btu/h (4.8 m³kW) of the appliance input rating.

FIGURE G2407.6.1(1) [304.6.1(1)]



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

G2414.10.4 (403.10.4) Metallic fittings. Metallic fittings including valves, strainers and filters shall comply

G2415.14 (404.14) Piping underground beneath buildings. Piping installed underground...from corrosion in accordance with Section G2415.9 <u>11</u> and shall be installed in accordance with Section G2415.<u>12.1</u> <u>14.1</u> or G2415.<u>12.1</u> <u>14.2</u>.

G2415.17 (404.17) Plastic pipe. The installation of plastic pipe shall comply with Sections G2415.15.1 17.1 through G2415.15.3 17.3.

G2417.3.2 (406.3.2) Appliances and equipment isolation. Appliances and equipment that is....

G2417.5.1 (406.5.1) Detection methods. The leakage shall be located by means of an approved combustible gas detector, a noncorrosive leak detection fluid or an equivalent nonflammable solution. Matches, candles, open flames or other methods that could provide a source of ignition shall not be used <u>or other approved leak detection methods</u>.

G2425.1 (501.1) Scope. This section....vents and connectors <u>and the utilization of masonry chimneys</u> serving gas-fired appliances.

G2427.2.2 (503.2.4) Appliances with integral vents. Appliances incorporating integral venting means shall be considered properly vented where installed in accordance.....

G2427.3 (503.3) Design and construction. A Venting systems shall be designed and constructed so as to develop a positive flow adequate to convey all flue or and vent gases to the outdoors.

G2427.3.3 (503.3.3) Mechanical draft systems. Mechanical...

- 1. (unchanged)
- 2. Appliances, except incinerators, requiring venting.....

G2427.6.1 (503.6.1) Installation, general. Gas vents....in accordance with the terms of their listings and the manufacturer's instructions

G2427.7.3 (503.7.3) Termination. Single-wall.....10 feet (3048 mm) (see Figure G2427.5.3). An approved....metal pipe (see also Section G2427.7.9, Item 3).

G2427.7.6 (503.7.6) Installation. Single-wall......Section G2427.7.7. Single-wall metal pipe used for venting an incinerator shall be exposed and readily examinable for its full length and shall have suitable clearances maintained.

G2427.10 (503.10) Vent connectors for Category I appliances. Vent connectors.....through G2427.1.44 13.

G2427.10.8 (503.10.8) Length of vent connector. A vent connector shall be as short as practical and the appliance located as close as practical to the chimney or vent. The maximum horizontal.....

G2428.2 (504.2) Application of single appliance vent Tables G2428.2(1) and G2428.2(2). The application.... through Section G2428.2.16 17.

TABLE G2428.3.2 (504.3.2)MAXIMUM VENT CONNECTOR LENGTH

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

CONNECTOR DIAMETER	CONNECTOR MAXIMUM HORIZONTAL
(inches)	<u>LENGTH</u>
	(feet)
Maximum	Length
(inches)	(feet)
3	4.5

(Remainder of table not shown is unchanged)

G2428.3.3 (504.3.3) Connectors with longer lengths. Connectors with longer.....

1. The maximum capacity (FAN Max or NAT Max) of the vent connector shall be reduced 10 percent for each additional multiple of the length <u>allowed by Section G2428.3.2</u> listed above.

G2431.1 (601.1) Scope. Sections G2432 through G2453 54 shall

Table G2428.3(2) [504.3(2)]

Number of Appliances	Two or more
Appliances Type	Category I
Appliances Vent Connection	Type B double wall connector Single-wall metal connector

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

1st and 3nd PRINTING (April 27, 2013)

CHAPTER 24 FUEL GAS

G2441.1 (617.1) General. Pool and spa...with ANSI Z21.56/CSA 4.7

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

1st and 2nd PRINTING (June 6, 2012)

CHAPTER 24 FUEL GAS

G2415.12 (404.12) Minimum burial depth. Underground piping systems.... except as provided for in Section G2415.10.1 <u>12.1.</u>

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

AFFECTS 1st through 9th PRINTING (This Errata Posted January 17, 2017)

CHAPTER 25 PLUMBING ADMINISTRATION

P2501.2 Application. In addition to the general administration...of Chapters 25 though 32 33.

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

Applicable to 1st through 12th PRINTINGS (This Errata Posted January 14, 2022)

CHAPTER 26 GENERAL PLUMBING REQUIREMENTS

P2603.2 Drilling and notching. ...Section R613.7 R610.7.

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

1st through 4th PRINTING (11-7-13)

CHAPTER 27 PLUMBING FIXTURES

Table P2701.1

Individual shower control valves anti-scald $\underline{\text{B125.1}}$

ASSE 1016, CSA B125 ASME A112.18.1/CSA

P2705.1 General. The

1. thru 7.

8. Integral fixture.....requirements of ASME A112.19.2/CSA B45.4 B45.1 or ASME A112.19.3/CSA B45.1 B45.4

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

1st and 2nd PRINTING (1-28-13)

CHAPTER 27 PLUMBING FIXTURES

P2705.1, Item 8.....ASME A112.91.2/CSA B45.1 B45.4 or ASME

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

1st and 2nd PRINTING (8-30-12)

CHAPTER 27 PLUMBING FIXTURES

TABLE P2701.1 PLUMBING FIXTURES, FAUCETS AND FIXTURE FITTINGS

MATERIAL	STANDARD
Plastic bathtub units	ANSI Z124.1 .2 , ASME A112.19.2/CSA B45.1

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

1st PRINTING (3-27-12)

CHAPTER 28 WATER HEATERS

P2803.6.1 Requirements for discharge pipe. The discharge piping serving a pressure-relief valve, temperature relief valve or combination valve shall:

Items 1 through 12 are unchanged.

13. Be constructed of those materials listed in Section P2904.5 P2905.5 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.

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

Applicable to 1st through 10th PRINTINGS (This Errata Posted April 11, 2017)

CHAPTER 29 WATER SUPPLY AND DISTRIBUTION

TABLE P2906.4WATER SERVICE PIPE

MATERIAL	STANDARD
Cross-linked polyethylene (PEX) plastic pipe and tubing	ASTM F876; ASTM F877; <u>AWWA C904;</u> CSA B137.5

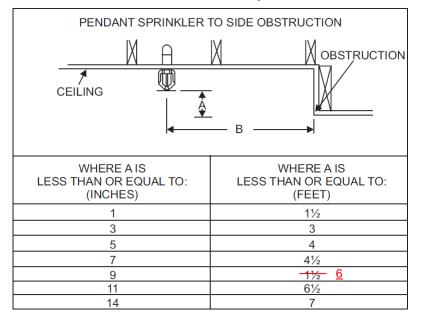
(Portions of text and tables not shown are unaffected by the errata)

1st through 4th PRINTING (11-7-13)

CHAPTER 29 WATER SUPPLY AND DISTRIBUTION

Figure P2904.2.4.2

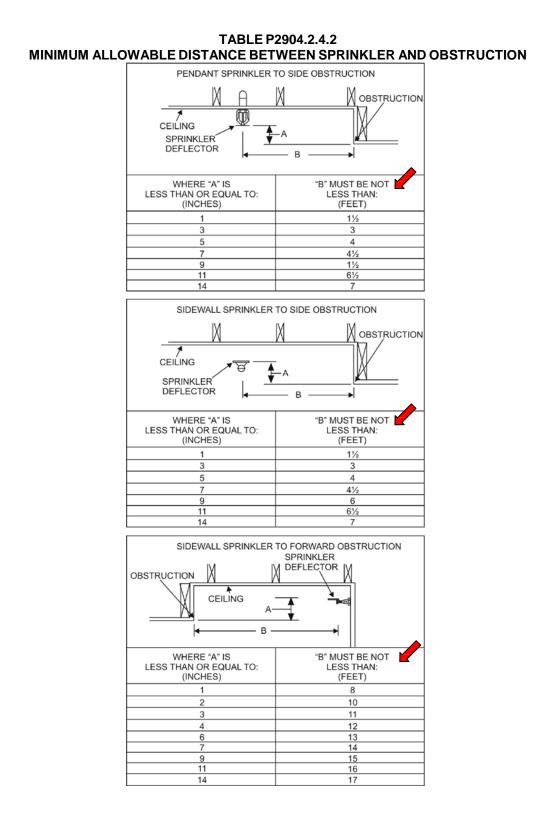
Minimum Allowable Distance Between Sprinkler and Obstruction.



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

1st PRINTING (12-5-11)

CHAPTER 29 WATER SUPPLY AND DISTRIBUTION



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

1st through 5th PRINTING (4-15-14)

CHAPTER 34 GENERAL REQUIREMENTS

Section E3407.3 Ungrounded conductors. Insulation...

Exception: An insulated conductor....or three continuous white stripes shall be used only <u>for the supply to the</u> <u>switch, not</u> as a return conductor from the switch to the outlet.

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

Applicable to 1st through 12th PRINTINGS (This Errata Posted April 22, 2022)

CHAPTER 39 POWER AND LIGHTING DISTRIBUTION

E3905.4.2 Utilization equipment.

Outlet and device boxes that enclose devices or utilization equipment shall have a minimum internal depth that accommodates the rearward projection of the equipment and the size of the conductors that supply the equipment. The internal depth shall include that of any extension boxes, plaster rings, or raised covers. The internal depth shall comply with all of the applicable provisions that follow. [314.24(B)]

Exception: Utilization equipment that is listed to be installed with specified boxes.

- Large equipment. Boxes that enclose devices or utilization equipment that projects more than 1⁷/₈ inches (48 mm) rearward from the mounting plane of the box shall have a depth that is not less than the depth of the equipment plus ¹/₄ inch (6.4 mm). [314.24(B)(1)]
- 2. Conductors larger than 4 AWG. Boxes that enclose devices or utilization equipment supplied by conductors larger than 4 AWG shall be identified for their specific function. [314.24(B)(2)]
- 3. Conductors 8, 6, or 4 AWG. Boxes that enclose devices or utilization equipment supplied by 8, 6, or 4 AWG conductors shall have an internal depth that is not less than 2¹/₁₆ inches (52.4 mm). [314.24(B)(3)]
- 4. Conductors 12 or 10 AWG. Boxes that enclose devices or utilization equipment supplied by 12 or 10 AWG conductors shall have an internal depth that is not less than 1³/₁₆ inches (30.2 mm). Where the equipment projects rearward from the mounting plane of the box by more than 1 inch (25.4 mm), the box shall have a depth that is not less than that of the equipment plus 1/4 inch (6.4 mm). [314.24(B)(4)]
- 5. Conductors 14 AWG and smaller. Boxes that enclose devices or utilization equipment supplied by 14

AWG or smaller conductors shall have a depth that is not less than 1⁵/₁₆ inch (23.8 mm). [314.24(B)(5)] **Exception:** Utilization equipment that is listed to be installed with specified boxes.

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

Applicable to 1st through 12th PRINTINGS (This Errata Posted January 14, 2022)

CHAPTER 39 POWER AND LIGHTING DISTRIBUTION

Section E3901.2 General purpose receptacle distribution. ...specified in Sections E3901.2.1 through E3901.2.3 <u>E3901.2.4</u> (see....

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

Applicable to 1st through 10th PRINTINGS (This Errata Posted December 5, 2018)

CHAPTER 39 POWER AND LIGHTING DISTRIBUTION

BOX DIMENSIONS	MAXIMUM	MAXIMUM NUMBER OF CONDUCTORS ^a						
(inches trade size and type)	CAPACITY (cubic inches)	18 Awg	16 Awg	14 Awg	12 Awg	10 Awg	8 Awg	6 Awg
$4 \times 2^{1/8}$ square	30.3	20	17	15	13	12	10	6
$4^{11}/_{16} \times \frac{14}{4}$ <u>11/4</u> square	25.5	17	14	12	11	10	8	5
$4^{11}/_{16} \times \frac{11}{2} \frac{11}{2}$ square	29.5	19	16	14	13	11	9	5
$4^{11}/_{16} \times 2^{1}/_{8}$ square	42.0	28	24	21	18	16	14	8

TABLE E3905.12.1 MAXIMUM NUMBER OF CONDUCTORS IN METAL BOXES^a

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

1st through 5th PRINTING (4-15-14)

CHAPTER 39 POWER AND LIGHTING DISTRIBUTION

Section E3908.12 Equipment grounding conductor size. Copper...Where ungrounded connectors conductors are increased in size....

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

Applicable to 1st through 12th PRINTINGS (This Errata Posted April 22, 2022)

Chapter 44 REFERENCE STANDARDS

SMACNA-10 03 Fibrous Glass Duct Construction Standards 7th edition

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

AFFECTS 1st through 9th PRINTING (THIS ERRATA POSTED September 28, 2016)

CHAPTER 44 REFERENCE STANDARDS

NFRC

National Fenestration Rating Council, Inc. 6305 Ivy Lane, Suite 140 Greenbelt, MD 20770

<u>100-2010</u>	Procedure for Determining Fenestration Products U-factors	N1101.12.3
200-2010	Procedure for Determining Fenestration Product Solar Heat Gain Coefficients And	
	Visible Transmittance at Normal Incidence	N1101.12.3
<u>400-2010</u>	Procedure for Determining Fenestration Product Air Leakage	N1102.4.3

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

1st through 8th PRINTING (POSTED October 23, 2015)

CHAPTER 44 REFERENCE STANDARDS

SMACNA

SMACNA/ANSI-2005 HVAC Duct Construction Standards, Metal and Flexible (2005)..... M1601.4.1

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

1st through 3rd PRINTING (April 7, 2015)

CHAPTER 44 REFERENCE STANDARDS

AFPA

NDS -2012 National Design Specification (NDS) for Wood Construction---with 2005 2012 Supplement

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

1st and 2nd PRINTING (June 4, 2014)

CHAPTER 44 REFERENCED STANDARDS

WDMA

AAMA/WDMA/CSA 101/I.S2/A440-08-11 Specifications for Windows, Doors and Skylights

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

1st through 5th PRINTING (January 14, 2014)

CHAPTER 44 REFERENCED STANDARDS

UL

- 723-- 03 2008 Standard for Test for Surface Burning Characteristics of Building Materials— with revisions through May 2005....
- 1256 02 Fire Test of Roof Deck Construction with revisions through January 2007.....

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

1st and 3nd PRINTING (April 27, 2013)

CHAPTER 44 REFERENCED STANDARDS

ASME

A112.19.5/ CSA B45.X <u>15</u>—2009 Trim for Water-closet Bowls, Tanks and Urinals

CSA

ASME A112.<u>1</u>9.2/ CSA B45.1—08 Ceramic Plumbing Fixtures....

ASME A112.19.3--2008/

A112.19.5/ CSA B45.15—2009 Trim for Water-closet Bowls, Tanks and Urinals

B45.4 02 Stainless Steel Plumbing Fixtures..... Table P2701.1, P2711.1, P2712.1

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

1st PRINTING (March 27, 2012)

CHAPTER 44 REFERENCED STANDARDS

PCA	
100- 10 <u>07</u>	Prescriptive Design of Exterior Concrete Walls for One and Two Family Dwellings
TPI	
TPI 1— 2002 <u>2(</u>	National Design Standard for Metal –plate-connected Wood truss Construction
SMACNA	
SMACNA -10	Fibrous Glass Duct Construction Standards (2003)M1601.1.1, M1604.4.1 M1601.4.1 HVAC Duct Construction Standards-Metal and Flexible (2005)M1601.4.1
UL	
790—04	Standard Test Methods for Fire Tests of Roof Coverings with revisions through October 2008
1703—02	Flat-plate Photovoltaic Modules and Panelswith revisions through April 2005 2008

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

1st PRINTING (January 5, 2012)

CHAPTER 44

ASME

A112.18.6/CSA B125.6 - 2010 09

A112.19.9M -1991 (R2002) Nonvitreous Ceramic Plumbing Fixtures with 2002 Supplement

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

1st PRINTING (September 16, 2011)

CHAPTER 44 REFERENCED STANDARDS

AISI

AISI S100—07/S1 <u>S2</u>—10 North American Specification for the Design of Cold-formed Steel Structural Members, with Supplement 2, dated 2010

AISI S230—07 /S2-08 Standard for Cold-formed Steel Framing--Prescriptive Method for One- and Two-family Dwellings, with Supplement 2, dated 2008

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

1st PRINTING (August 11, 2011)

CHAPTER 44 REFERENCED STANDARDS

TPI

TPI 1 – 2002 07 National Design Standard for Metal-plate-connected Wood Truss Construction

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

1st PRINTING (3-27-12)

APPENDIX A SIZING AND CAPACITIES OF GAS PIPING

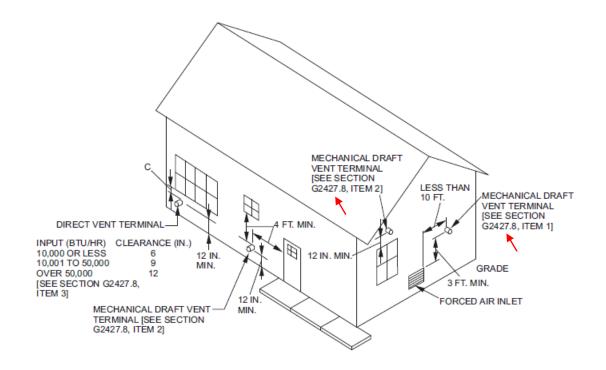
DELTE Section A.6 in its entirety including Figures A.6(a) and A.6(b).

Renumber subsequent sections and figures.

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

1st PRINTING (3-27-12)





For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 British thermal unit per hour = 0.2931 W.

APPENDIX C EXIT TERMINALS OF MECHANICAL DRAFT AND DIRECT-VENT VENTING SYSTEMS

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

1st PRINTING (3-27-12)

APPENDIX H PATIO COVERS

AH103.2 Light, ventilation and emergency egress. Exterior openings required for light and ventilation shall be permitted to open into a patio structure conforming to Section AH101, provided that the patio structure shall be unenclosed if such openings are serving as emergency egress or rescue openings from sleeping rooms. Where such exterior openings serve as an exit from the *dwelling unit*, the patio structure, unless unenclosed, shall be provided with exits conforming to the provisions of Section R310 R311 of this code.

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

1st and 2nd PRINTING (7-11-12)

APPENDIX P SIZING OF WATER PIPING SYSTEM

AP101.1.1 This appendix outlines.....source, the head charges changes in the system....

AP103.2.2 Water pipe sizing....

1. Pressure required...and Section 604.5 3 of the International.....

AP103.3 Segmented loss method.

3. Selection of pipe size.

3.1 Pressure required.....and Section 604.5 3 of the International.....

TABLE AP103.3(1)

Footnote b. To consider separately......if greater loss than Note a above.

FIGURE AP103.3(3) FRICTION LOSS IN SMOOTH PIPE^a (TYPE L, ASTM B88 COPPER TUBING)

FIGURE AP103.3(4) FRICTION LOSS IN SMOOTH PIPE^a (TYPE M, ASTM B88 COPPER TUBING)

FIGURE AP103.3(5) FRICTION LOSS IN FAIRLY ROUGH SMOOTH PIPE^a

FIGURE AP103.3(7) FRICTION LOSS IN FAIRLY ROUGH PIPE^a