

2009 IRC CODE UPDATE TRAINING

WELCOME

2009 REGIONAL TRAINING

RESIDENTIAL BUILDING CODE

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HOUSEKEEPING



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CHAPTER 2: Definitions (IRC)

Habitable Attic

- Finished or unfinished space
- *Includes potentially habitable spaces*
- Not considered a “story”

NEW



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CHAPTER 2: Definitions (IRC)

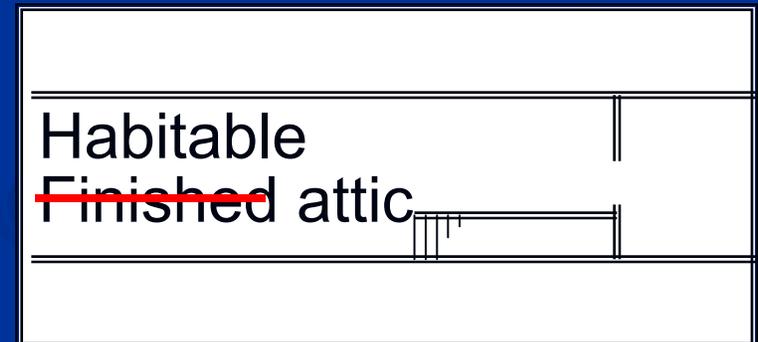
Difference between “attic” and “habitable attic”

- **Attic** is unfinished space
 - Oxymoron: “finished attic”



- **Habitable attic** is finished or unfinished area that meets the size and height requirements for *habitable space*:

- Min. 70 sqft floor area ($\geq 5'$ tall)
- Min. 35 sqft ceiling area ($\geq 7'$ tall)
- Min. 30 PSF LL floor design



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R311.4: Vertical Means of Egress

The space is not to be considered a habitable level *when collar ties (ceiling joists) <7' above the floor*



...then a code compliant stair will not be required

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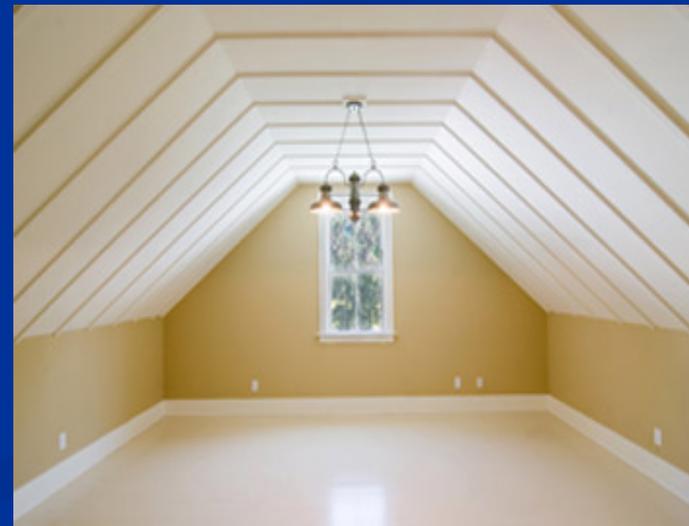
R310.1: EERO and R314.3: Smoke Alarms

Habitable attics are presumed to be finished off sooner or later. Therefore they shall have:

- Smoke detector hardwired into system

Smoke detectors are not typically required for “attics”

NEW



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R311.4: Vertical Means of Egress

Habitable attic level

- EERO: 5.7 sqft (Sleeping)
AND
- Vertical means of egress:
code compliant stairs



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Table R301.5: Min. Uniform Live Load

Live load table

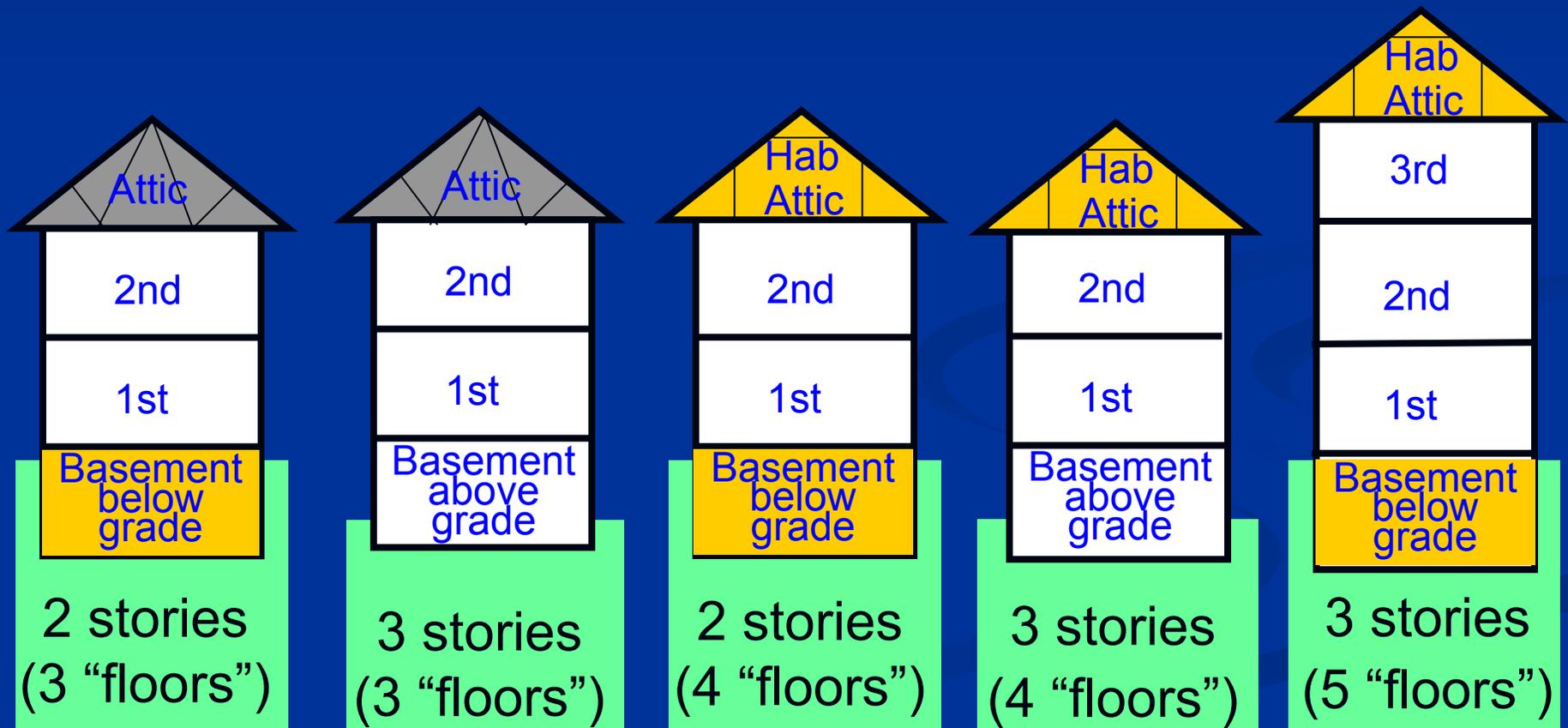
Attics without storage (i.e. hatch)	10 psf
Attics with limited storage (i.e. pull down stair)	20 psf
Habitable attics or attics served with fixed stair	30 psf
Exterior balconies	<u>40 psf</u>



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CHAPTER 2: Definitions (IRC)

Allowable 3 story house



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CHAPTER 3: BUILDING PLANNING

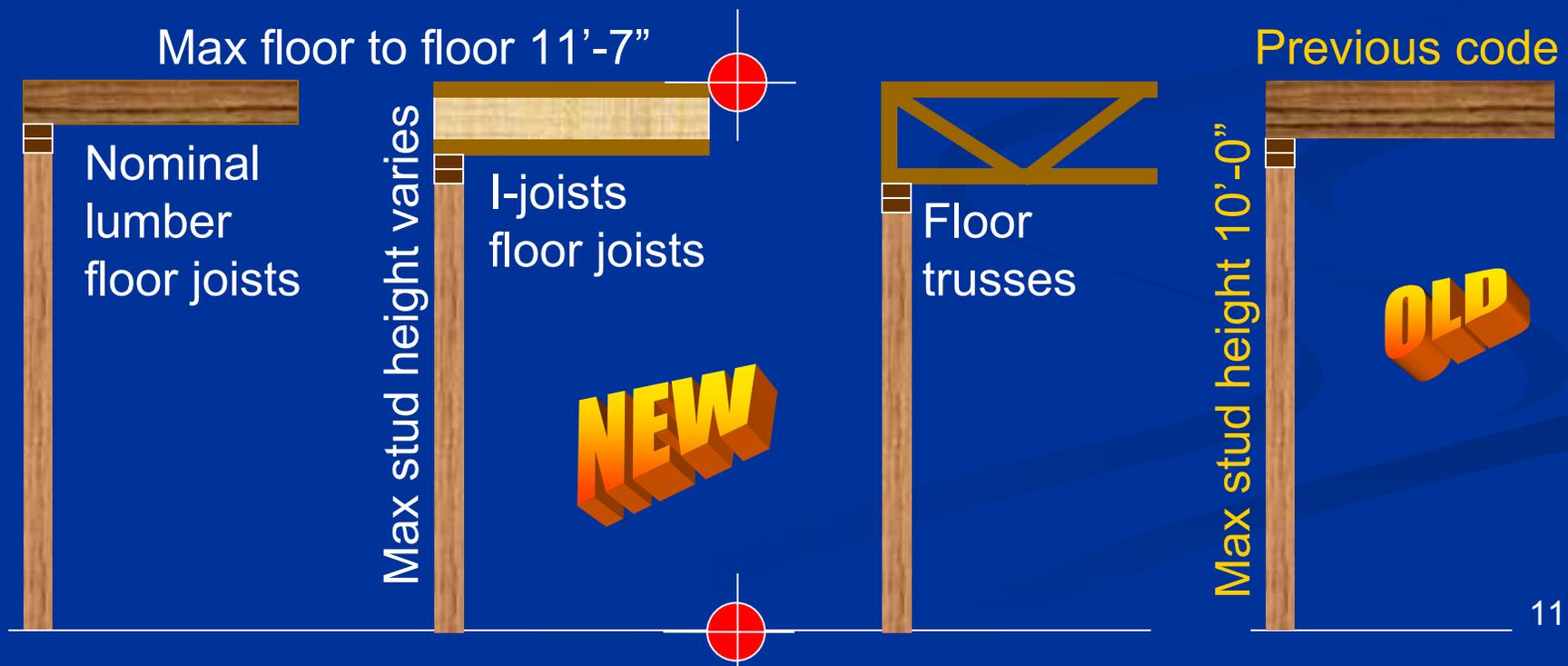


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R301.3: Story Height

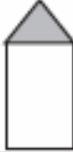
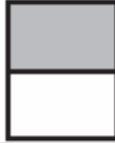
Story height limited to 11'-7"

Previously: Floor height limited by stud height of 10' plus 16" for top plates and joists



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TABLE R602.3(5)
SIZE, HEIGHT AND SPACING OF WOOD STUDS^a

STUD SIZE (Inches)	BEARING WALLS					NONBEARING WALLS	
	Laterally unsupported stud height ^a (feet)	Maximum spacing when supporting a roof-ceiling assembly or a habitable attic assembly, only (Inches)	Maximum spacing when supporting one floor, plus a roof-ceiling assembly or a habitable attic assembly (Inches)	Maximum spacing when supporting two floors, plus a roof-ceiling assembly or a habitable attic assembly (Inches)	Maximum spacing when supporting one floor height ^a (feet)	Laterally unsupported stud height ^a (feet)	Maximum spacing (Inches)
							
2 × 3 ^b	—	—	—	—	—	10	16
2 × 4	10	24 ^c	16 ^c	—	24	14	24
3 × 4	10	24	24	16	24	14	24
2 × 5	10	24	24	—	24	16	24
2 × 6	10	24	24	16	24	20	24

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 square foot = 0.093 m².

- Listed heights are distances between points of lateral support placed perpendicular to the plane of the wall. Increases in unsupported height are permitted where justified by analysis.
- Shall not be used in exterior walls.
- A habitable attic assembly supported by 2 × 4 studs is limited to a roof span of 32 feet. Where the roof span exceeds 32 feet, the wall studs shall be increased to 2 × 6 or the studs shall be designed in accordance with accepted engineering practice.

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WALL CONSTRUCTION

TABLE R602.3.1
MAXIMUM ALLOWABLE LENGTH OF WOOD WALL STUDS EXPOSED TO WIND SPEEDS OF 100 mph OR LESS
IN SEISMIC DESIGN CATEGORIES A, B, C, D_s, D_o, and D₁^a*

HEIGHT (feet)	ON-CENTER SPACING (inches)			
	24	16	12	8
Supporting a roof only				
>10	2 x 4	2 x 4	2 x 4	2 x 4
12	2 x 6	2 x 4	2 x 4	2 x 4
14	2 x 6	2 x 6	2 x 6	2 x 4
16	2 x 6	2 x 6	2 x 6	2 x 4
18	NA ^a	2 x 6	2 x 6	2 x 6
20	NA ^a	NA ^a	2 x 6	2 x 6
24	NA ^a	NA ^a	NA ^a	2 x 6
Supporting one floor and a roof				
>10	2 x 6	2 x 4	2 x 4	2 x 4
12	2 x 6	2 x 6	2 x 6	2 x 4
14	2 x 6	2 x 6	2 x 6	2 x 6
16	NA ^a	2 x 6	2 x 6	2 x 6
18	NA ^a	2 x 6	2 x 6	2 x 6
20	NA ^a	NA ^a	2 x 6	2 x 6
24	NA ^a	NA ^a	NA ^a	2 x 6
Supporting two floors and a roof				
>10	2 x 6	2 x 6	2 x 4	2 x 4
12	2 x 6	2 x 6	2 x 6	2 x 6
14	2 x 6	2 x 6	2 x 6	2 x 6
16	NA ^a	NA ^a	2 x 6	2 x 6
18	NA ^a	NA ^a	2 x 6	2 x 6
20	NA ^a	NA ^a	NA ^a	2 x 6
22	NA ^a	NA ^a	NA ^a	NA ^a
24	NA ^a	NA ^a	NA ^a	NA ^a

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa,
1 pound per square inch = 6.895 kPa, 1 mile per hour = 0.447 m/s.

a. Design required.

b. Applicability of this table assumes the following: Snow load not exceeding 25 psf, & not less than 1310 psf (determined by multiplying the ASCE 7-05 basic snow design value by the repetitive use factor, and by the size factor for all species on east and west gable, & not less than 1.6 x 10⁶ psf, (tributary dimensions for floors and roofs not exceeding 5 feet, maximum span for floors and roof not exceeding 12 feet, w/eave not over 2 feet in dimension and exterior sheathing. When the conditions are not within these parameters, design is required.

c. Utility, standard, steel and No. 3 grade lumber of any species are not permitted.

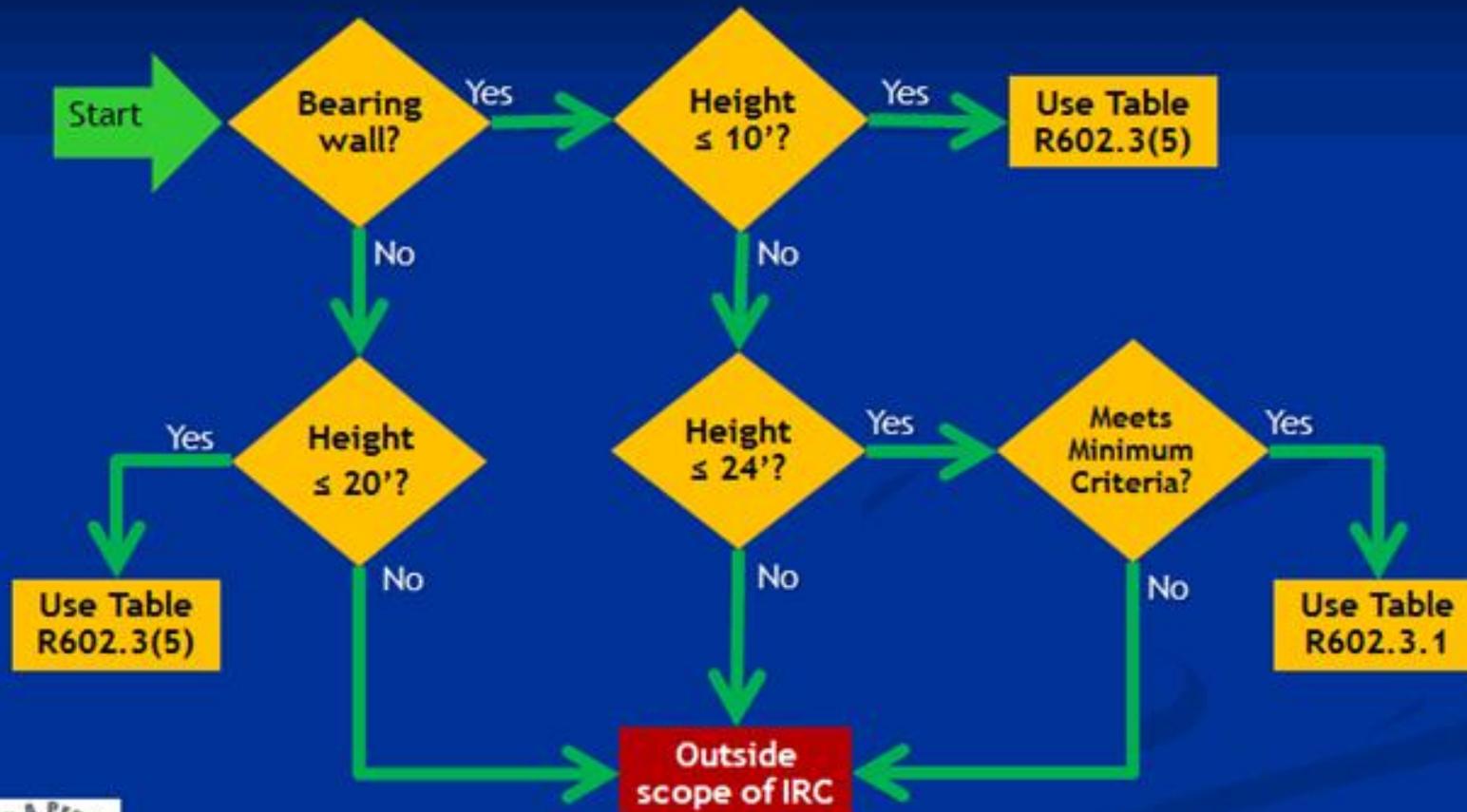
(continued)

THIS TABLE IS GOOD FOR:

- STAIWELLS
- ENTRY CATHEDRALS
- WITH TRIBUTARY LOADS GREATER THAN 6'.
- GABLE WALLS
- HEIGHTS EXCEEDING 12' REQUIRE ENGINEER FOR WB.

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Wall Stud Design Check



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R305.1: Minimum Ceiling Height

Minimum ceiling height: 7 feet

- Habitable spaces,
- Hallways,
- Bathrooms,
- Laundry rooms

NO CHANGE

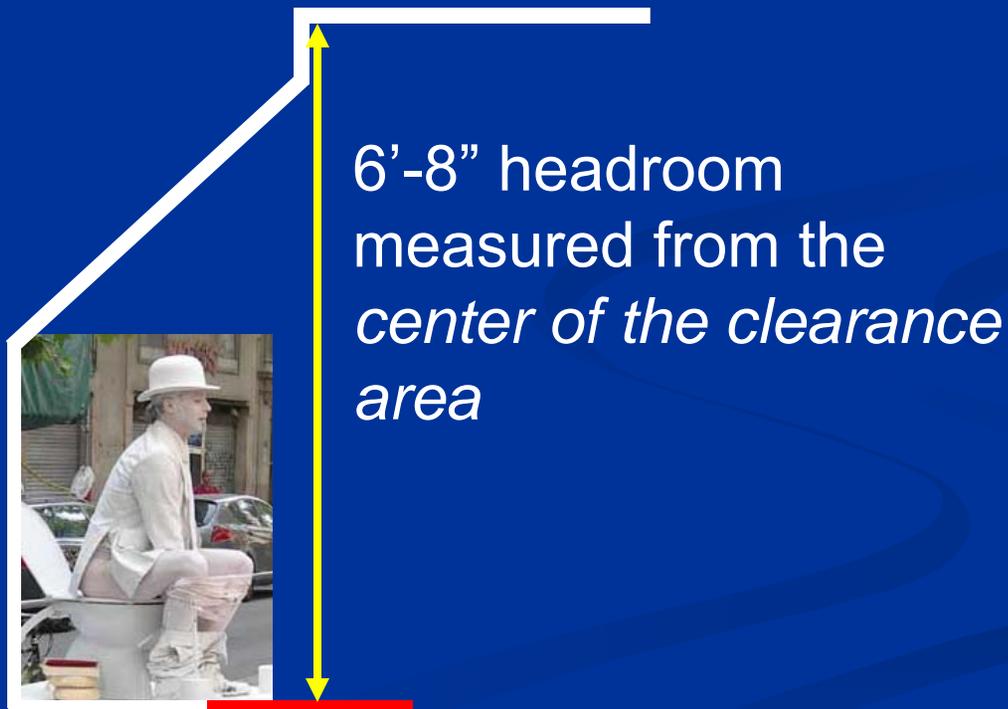


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R305.1, Exception #2: Ceiling Height at Fixtures

Bathrooms fixtures shall have 6'-8" headroom measured from the center of the 21" square "front clearance area"

AMENDED



21" clearance area

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R305.1, Exception #4: Ceiling Height at Fixtures

AMENDED

Up
slope



6'-8"
headroom

center of 21"
clearance area

Down
slope



6'-8"
headroom

21"

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R305.1, Exception #4: Ceiling Height at Fixtures

A shower or tub equipped with a shower head shall have a minimum of 6'-8" headroom above a 30"x30" clearance area



Side
slope

6'-8"
headroom

NEW

Everywhere above a 30"x 30"
clearance area in front of
shower head

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R308.4, #5: Safety Glazing

Safety glazing:

required within 60" vertically
of the walkway or standing
surface



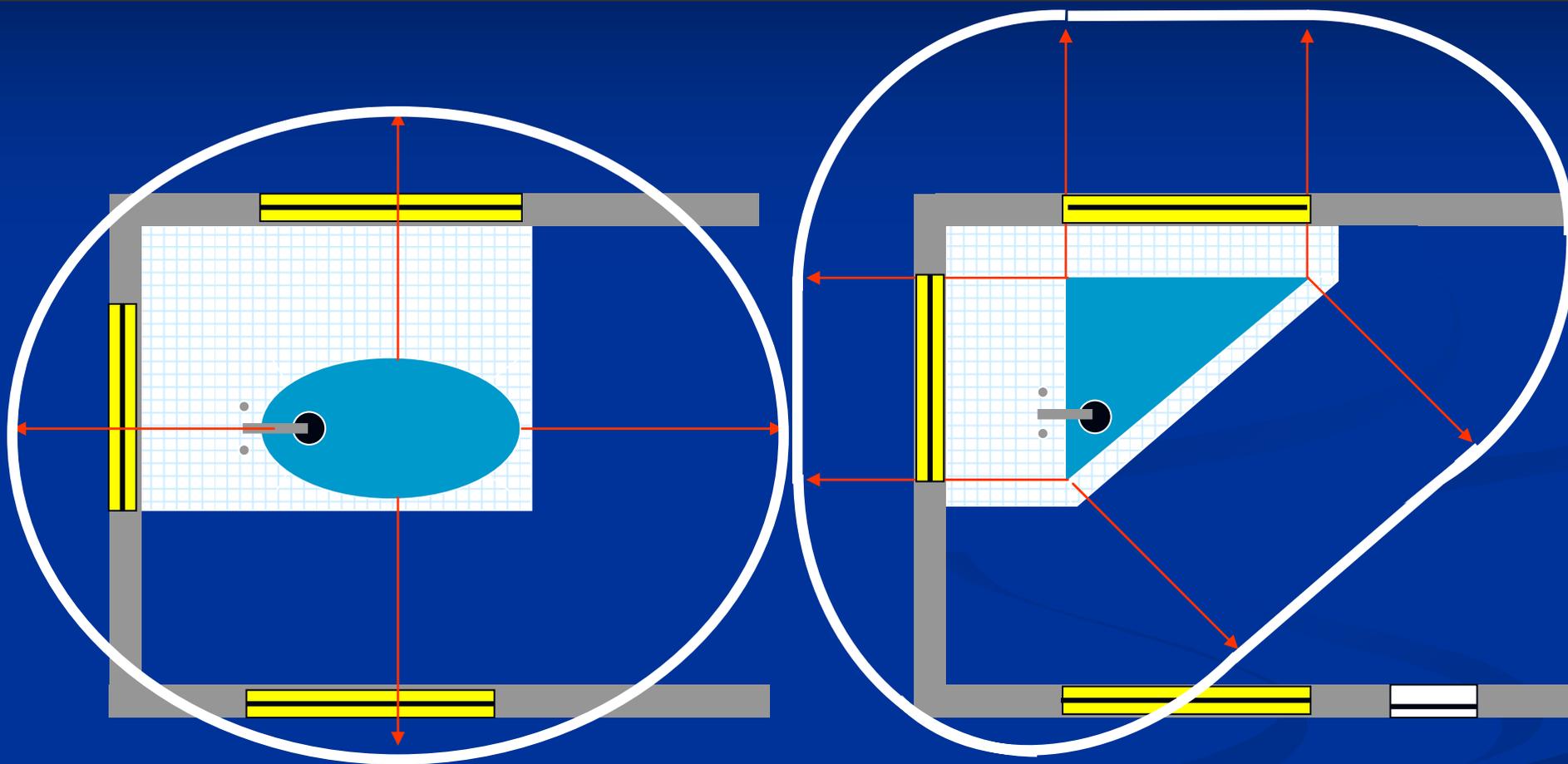
NEW

Safety glazing:

required within 60" measured
horizontally and in a straight line
from the water's edge of a hot
tub, whirlpool and bathtub



R308.4, #5: Safety Glazing



60" horizontal offset

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R311.2: Egress Door

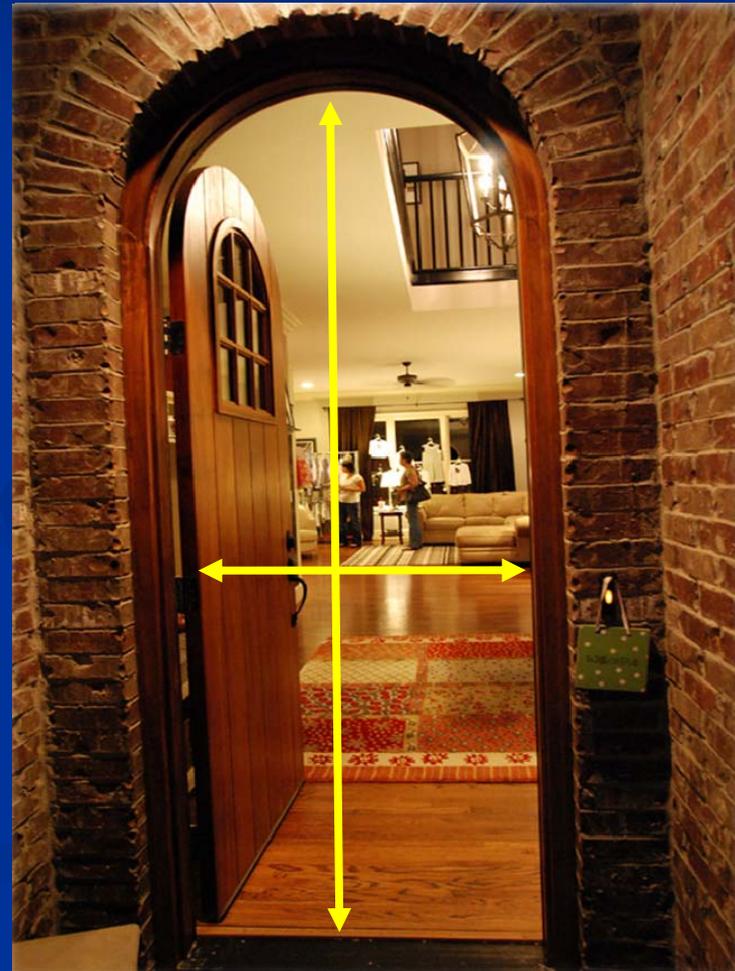
Houses must have at least one “egress” door:

- Be side-hinged
- Have 32” from the stop to the face of the door when opened at a 90 degree angle

AND

- Measure 78” from the threshold to the stop

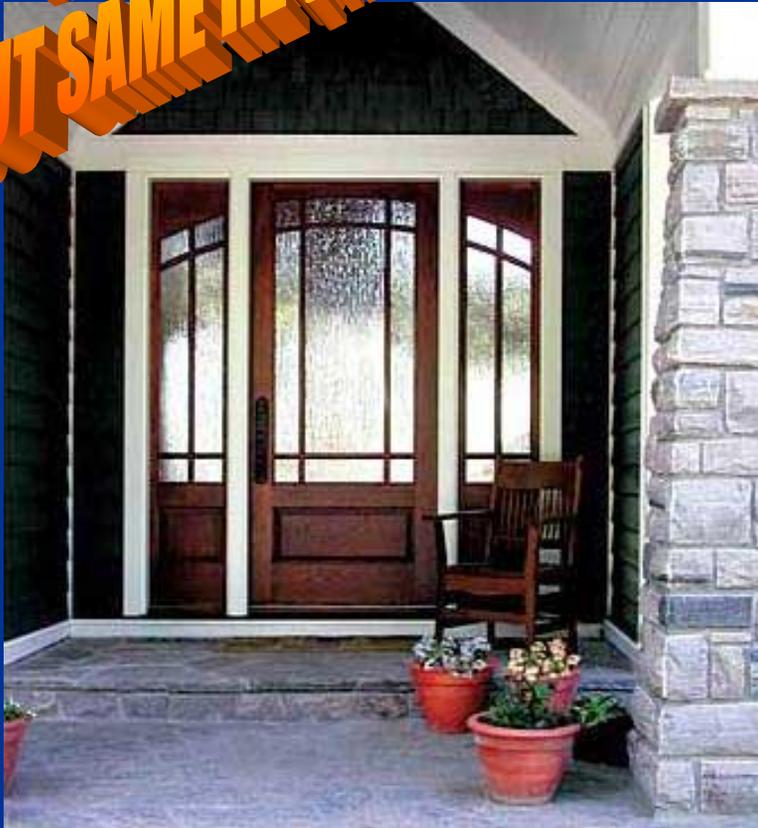
NEW



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R311.3: Floors / Landings at Exterior Doors

REWRITTEN
BUT SAME REQMT.



Landings at exterior doors:

- Required on both sides of door
- 36" long measured in the direction of travel
- Screen doors and storm doors may swing over landing
- Exception for other exterior doors with two or fewer risers

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R311.3: Floors / Landings at Exterior Doors



Stairs

at exterior doors:

- Closed risers
- 36" long landing required at top and bottom of stairs
- Screen doors and storm doors may swing over the landing

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R311.3: Floors / Landings at Exterior Doors

36" wide landings are required on both sides of all exterior doors:



Exception:

Exterior balconies may be < 36" wide provided:

- Balcony < 60 sqft
AND
- Only accessible from a door



NEW

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R312.1: Guards

Guards required along open-sided walking surfaces **if:**

- >30" to grade
- measured 36" out from edge

NEW



Guards
not reqd

Guards
reqd

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R312.2: Guards

Fixed seating used as part of a guardrail:



- Deck >30" above grade
 - guardrail must be ≥ 36 " above the seat.
 - Creates problems with railing system deflection.



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R312.2: Guards



- Deck $\leq 30''$ above grade
 - guardrail not required behind seats
 - Note: 30'' is measured from the top of deck – not the top of the seat

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R313: Automatic Fire Sprinkler Systems (USBC)

Automatic Sprinkler Systems:

- **NOT** required for houses
- However there are incentives for usages in townhouses.



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R314: Smoke Alarms

Option 1- *Smoke alarms:*

- Smoke alarms at:
 - Bedrooms
 - Hallways outside bedrooms
 - Each floor including habitable attics and basements
- Interconnected by permanent wiring
- Battery backup

NO CHANGE



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R314: Smoke Alarms

Option 2 - *Smoke detection system:*

Smoke detectors at:

- Bedrooms
 - Hallways outside bedrooms
 - Each floor including habitable attics and basements
-
- Main control panel
 - Audible warnings
 - Off-site monitoring



NO CHANGE

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R314.2: Smoke Detection Systems

1. Smoke detection system shall become a permanent fixture of the house and owned and maintained by homeowner.
2. System shall be monitored by an approved offsite monitoring company **FOREVER!**
3. To eliminate offsite monitoring, the **smoke detector system** must be replaced with approved **smoke alarms** (if not already installed).

NEW



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R315.1: Carbon Monoxide Alarms

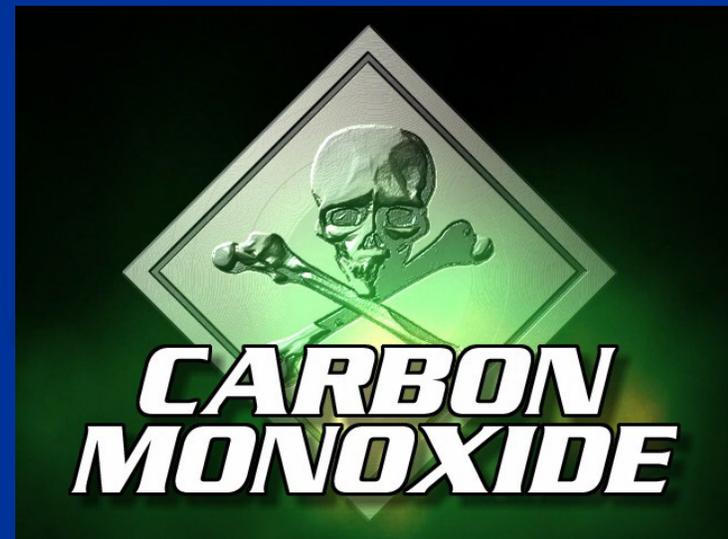
CO alarms required for new houses with:

- Fuel-fired appliances,
OR
- Attached garage.

Location:

- Outside each sleeping area

NEW

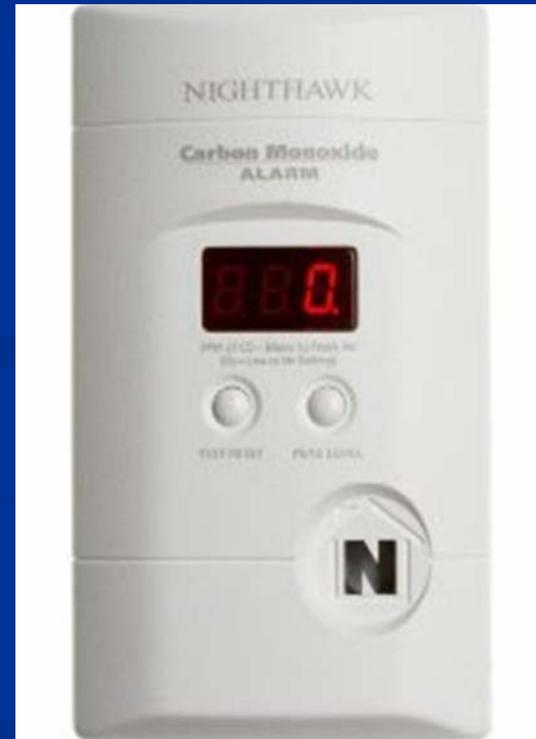


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R315.1 Carbon Monoxide Alarms

System requirements:

- Single station alarms may be hard-wired, plug-in, or battery type
- Complying with UL 2034, “Single and Multiple Station Carbon Monoxide Alarms”
- Installed per manufacturer’s instructions



NEW

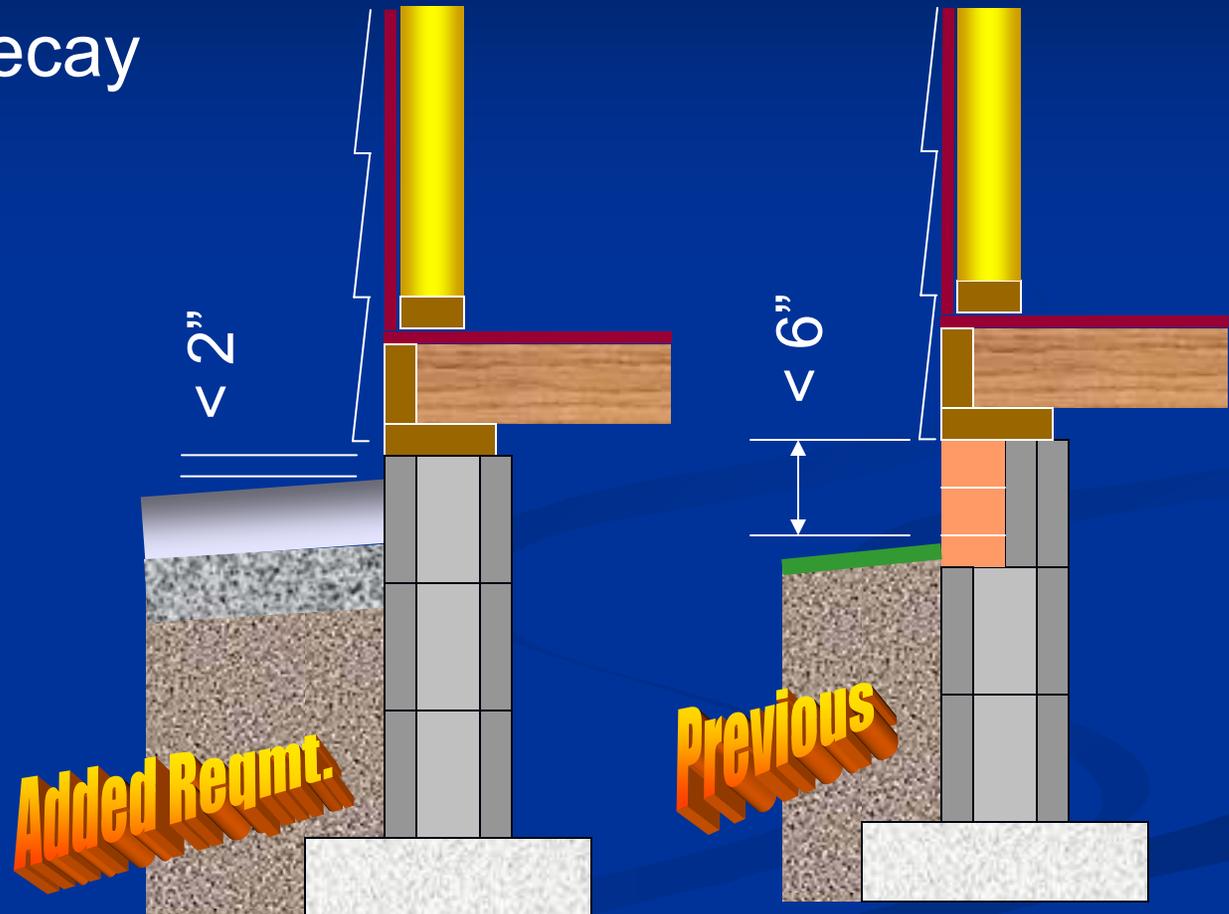
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R317.1: Locations for Protection Against Decay

Protection from decay required for:

Wood siding, sheathing, and wall framing < 2" above:

- Concrete slab exposed to weather
- Concrete patio slabs or steps,
- Porch slabs



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R317.1: Locations for Protection Against Decay

Protection from decay required for:

Wood siding, sheathing, and wall framing < 2" above:

- Concrete slab exposed to weather
- Concrete patio slabs or steps,
- Porch slabs



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R319.1: Address Numbers

Address numbers shall be:

1. Min. 4" tall x 1/2" stroke,
2. Contrasting background color,
3. Visible from the road – either mounted on the house or on a pole or monument

(previously it just had to be readable from the street)

NEW



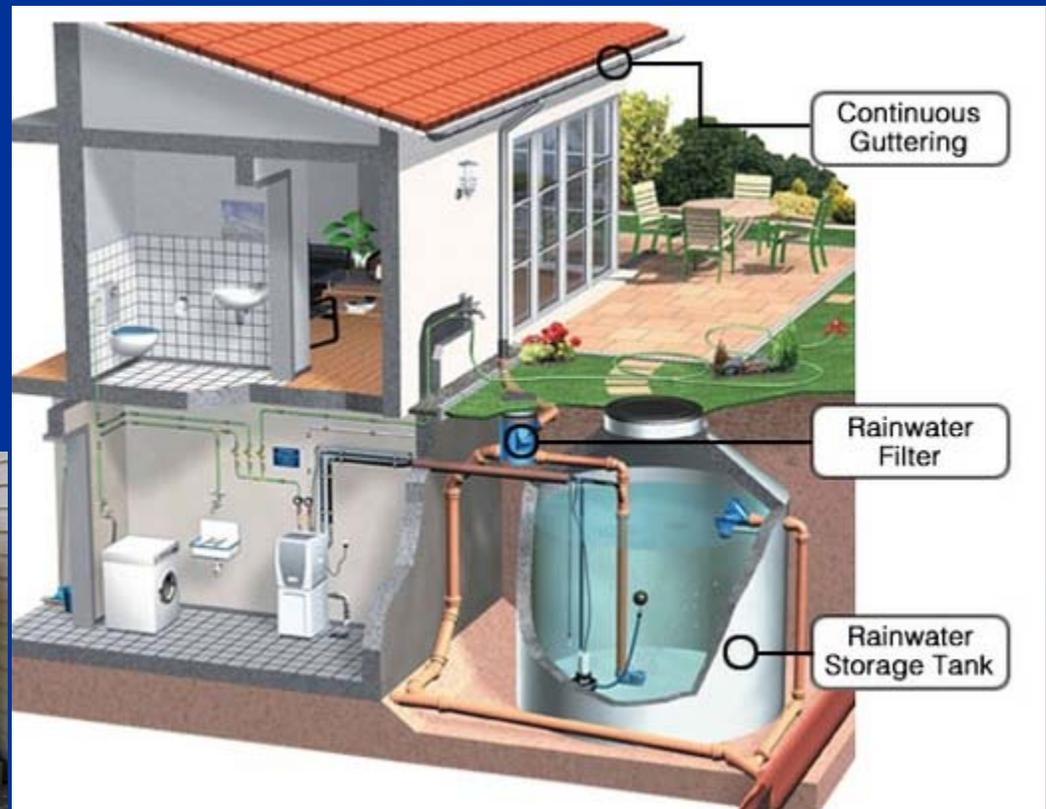
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R328 Gray Water and Rain Water Recycling (USBC)

Gray water and rain water systems:

NEW

- Use Appendix O for designing both systems
- Cannot mix the two systems.



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R329: Fire Extinguishers (USBC)



Fire extinguisher required:

- In dwellings NOT equipped with a sprinkler system
- Installed in the “kitchen area”
- 2-A: 10-B: C rated or an approved equivalent

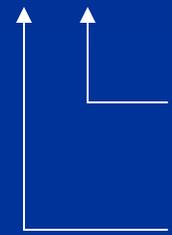
NEW

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R329: Fire Extinguishers (USBC)

2-A: 10-B: C rated

“2-A”

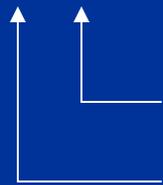


rated for flammable
produces: wood,
paper, cloth, etc

x 1.25 = Equivalent
gallons of water

(example $2 \times 1.25 = 2.5$ gal.)

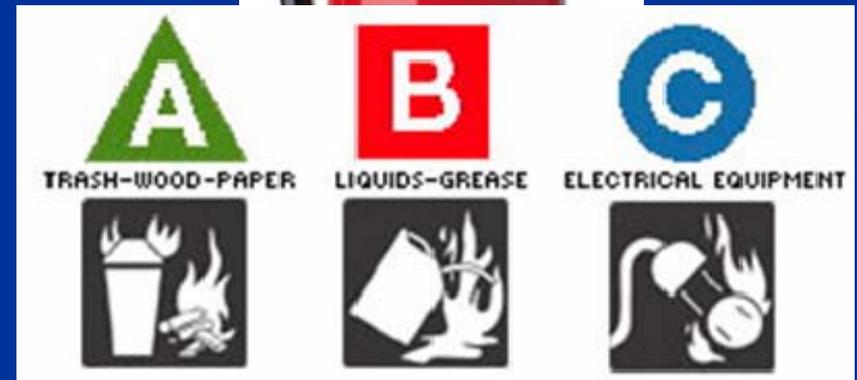
“10-B”



rated for liquids, gasses & grease
number of sqft it can cover

“C”

electrical equipment



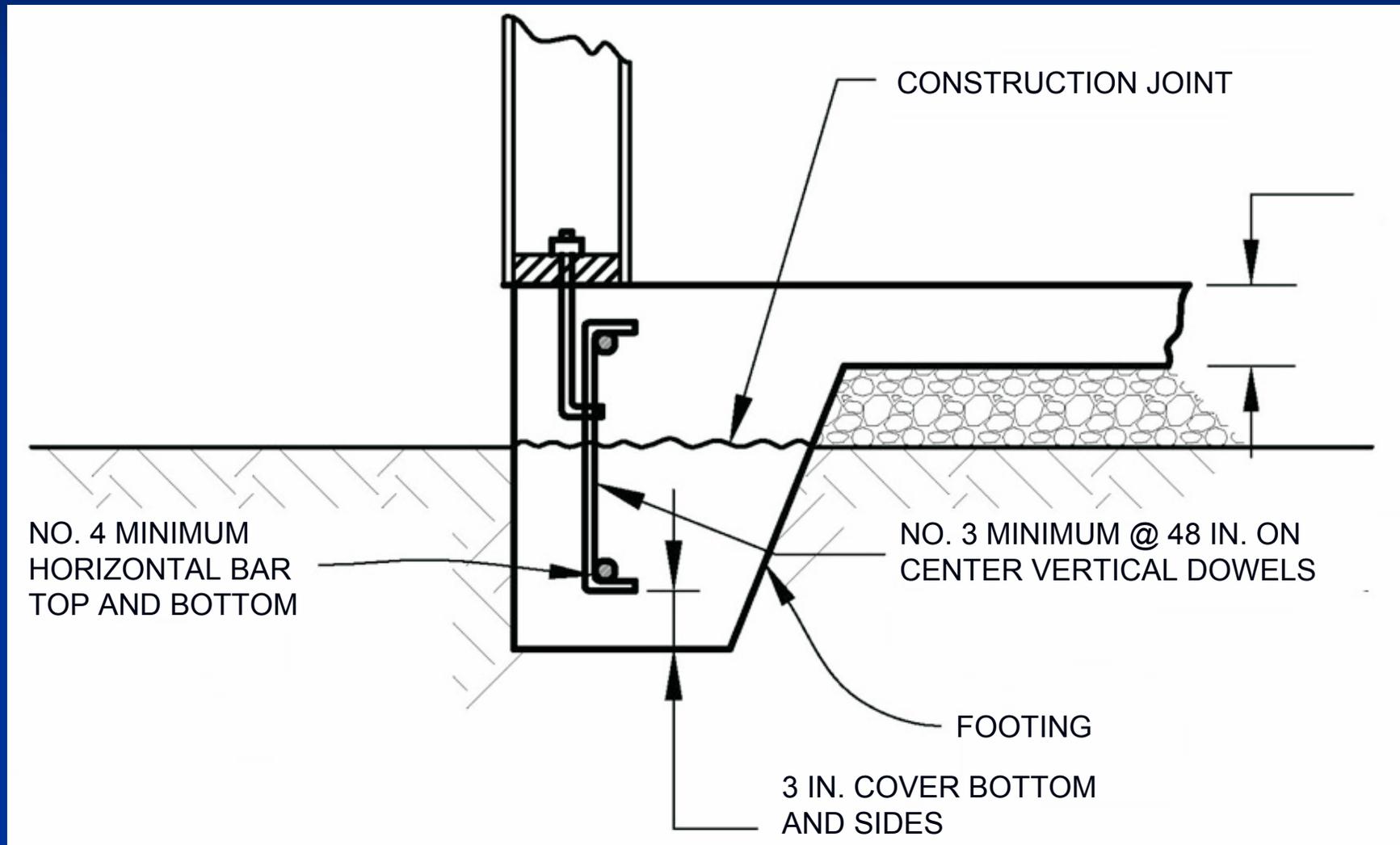
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CHAPTER 4: FOUNDATIONS



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R403.1.3.2 REINFORCEMENT SCHEDULE FOR TURNED DOWN FOOTINGS



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R403.1.6: Foundation Anchorage

1/2" dia. A. B. (or equivalent):

- Embedded 7" into
 - Concrete, **OR**
 - Grouted cells of masonry units
- Min. (2) A.B. per plate
 - (1) within max. 12" of each end of the mudsill
 - Max 6' o.c.
 - 2 exceptions

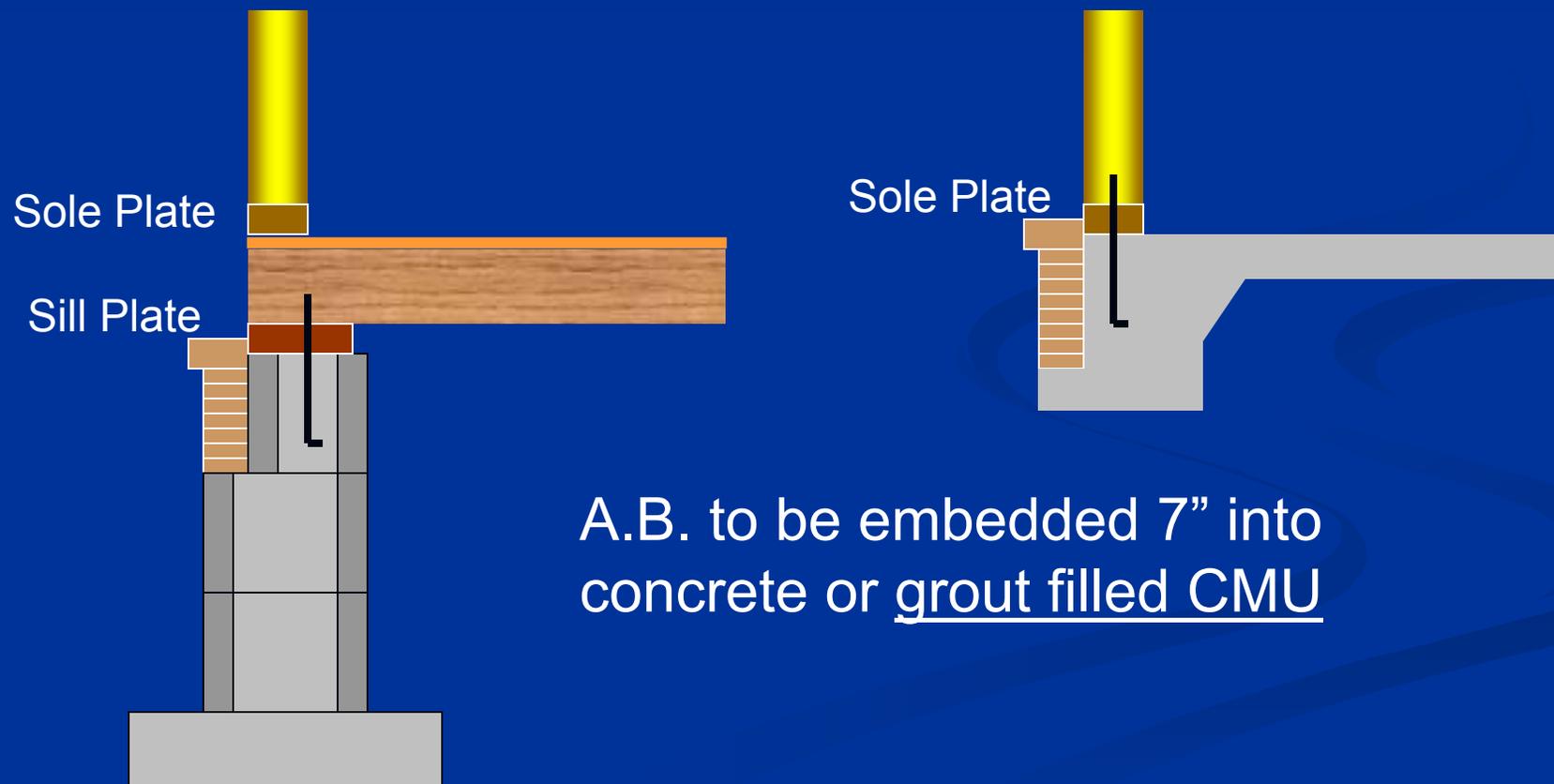
NEW



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R403.1.6: Foundation Anchorage

Definitions: *sill plate*, *sole plate*



A.B. to be embedded 7" into
concrete or grout filled CMU

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R403.1.6: Foundation Anchorage

- Not allowed to anchor structure to brick or solid masonry.
- A.B. must be placed into concrete or solid grouted cells of CMU



1/2" A.B. in cores of brick



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R404.1: Foundation and Retaining Walls

This whole section
was rewritten.

The highlights follow:

NEW



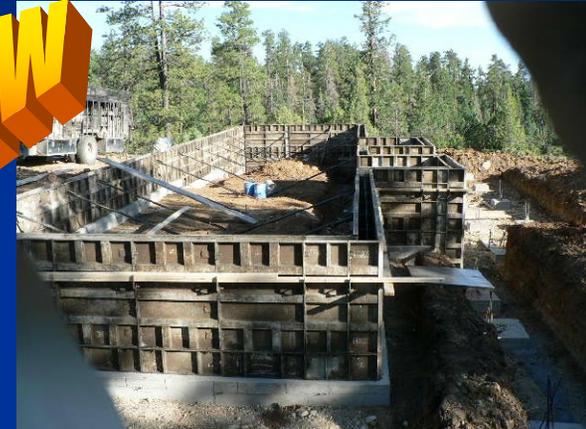
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Table R404.1.2: Concrete Foundations Walls

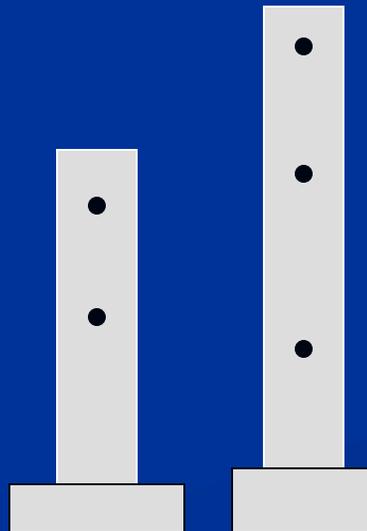
Concrete foundations walls

New table specifies
horizontal reinforcing:

NEW



$\leq 8'$ tall wall:
#4 within 12" top
#4 near mid height



$>8'$ tall wall:
#4 within 12" top
#4 at the 1/3 points

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R404.1.2: Concrete Foundations Walls

Concrete foundations walls

8 new tables for vertical reinforcement with rebar:

- 8" thick poured walls
- 10" thick poured walls
- 12" thick poured walls
- ICF walls
- Alternative rebar sizing charts

NEW



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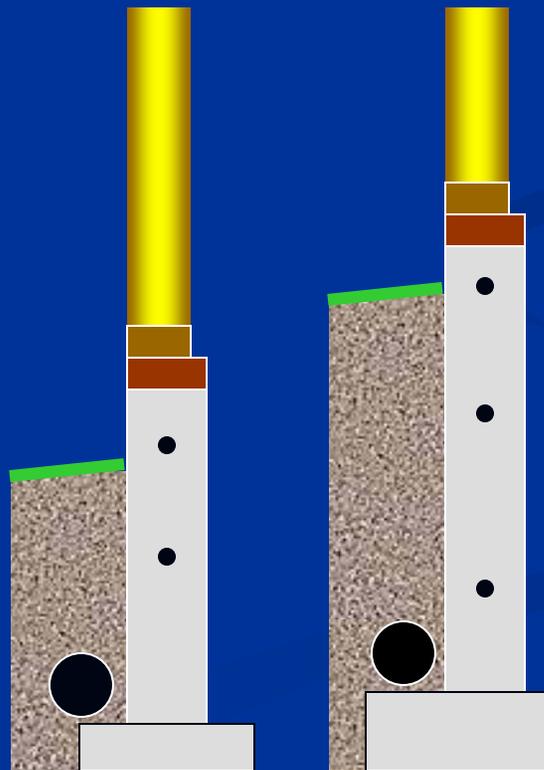
R404.1.2.2.2 Concrete and Masonry Foundation Walls

Concrete foundation stem walls

- Supporting light frame, above-grade walls
- **NOT** laterally supported at the top:

NEW

Walls retaining $\leq 48''$ of unbalanced fill, shall be constructed as a concrete foundation wall.



Walls retaining $> 48''$ of unbalanced fill, shall be designed as a retaining wall by RDP.

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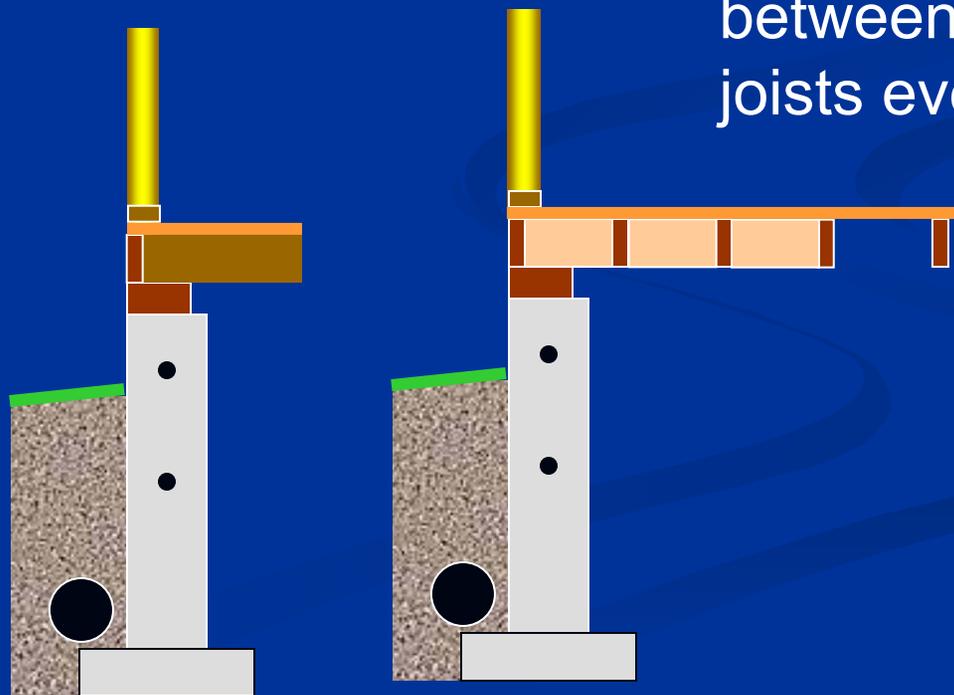
R404.1 Concrete and Masonry Foundation Walls

Concrete foundation stem walls

- Supporting light frame, above-grade walls
- Laterally supported at the top:

Walls retaining $\leq 48''$ of unbalanced fill, shall be constructed as a concrete foundation wall.

Where joists run parallel to the foundation wall, blocking required between 3 end joists every 48''



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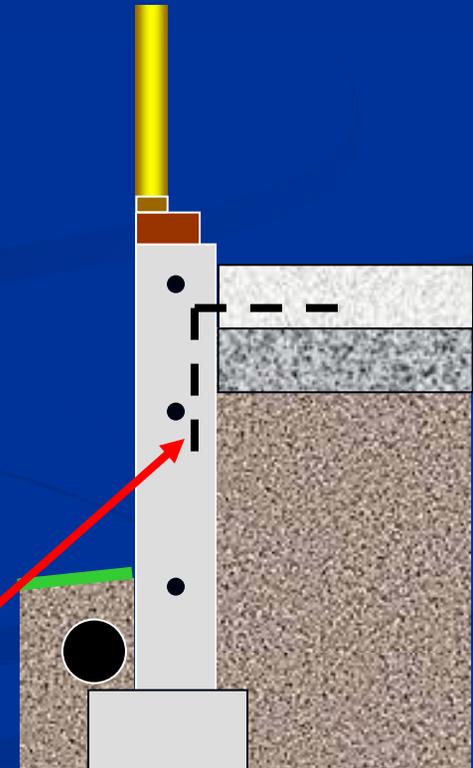
R404.1 Concrete and Masonry Foundation Walls

Concrete foundation stem walls

- Supporting light frame, above-grade walls
- Laterally supported at the top:

Walls retaining > 48 " of unbalanced fill, where the slab on ground provides lateral support for the top of the wall, the connection between the stem wall and the slab shall be in accordance with:

- PCA 100, "Prescriptive Design of Exterior Concrete Walls..."
OR
- accepted engineering practice.

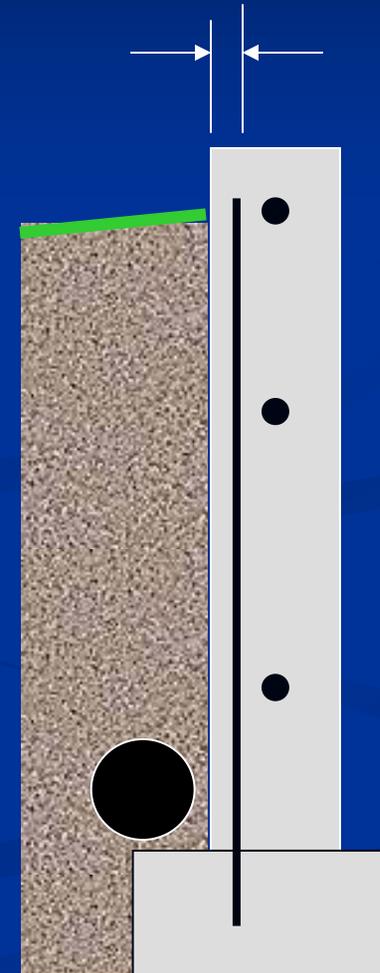


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R404.1 Concrete and Masonry Foundation Walls

Rebar protection

- Minimum cover for reinforcement in concrete cast in removable forms that will be exposed to the earth or weather shall be:
 - 1½" for #5 bars and smaller, and
 - 2" for #6 bars and larger.



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Minimum concrete coverage for rebars:

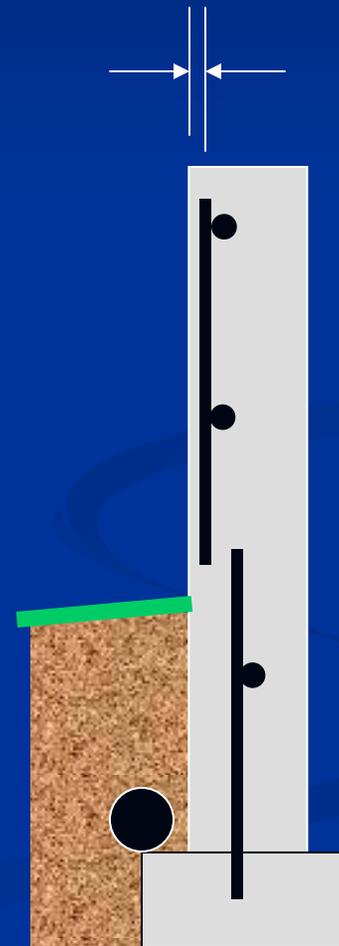
- 1½" of coverage when cast in removable forms or exposed to the earth or weather
- 2" required on #6 bars or larger

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R404.1 Concrete and Masonry Foundation Walls

Rebar protection

- Minimum cover for reinforcement in concrete that will not be exposed to the earth or weather shall be $\frac{3}{4}$ ".

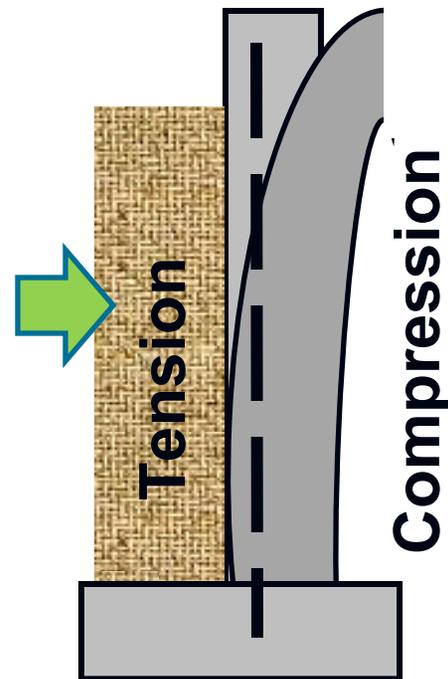


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Q:
... but which
side does it
belong?

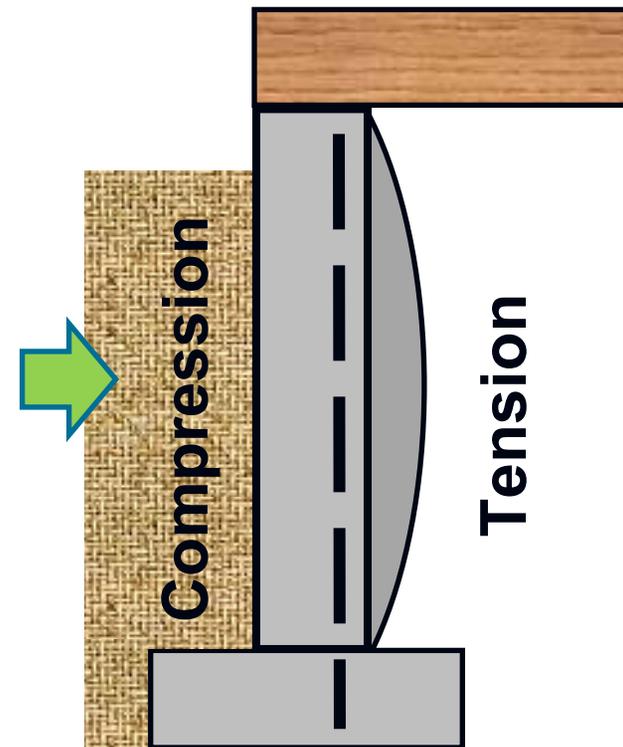
A:
ALWAYS
on the
tension side
of the
centerline

Unrestrained at top



Retaining Wall

Restrained at top



Basement Wall

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R407.3 Steel Columns

Steel posts/columns must be restrained at bottom



NEW



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R407.3 Steel Columns

- Steel pipe shall be minimum 3" dia.
Schedule 40
(refer to *Steel Handbook*)
- Or equivalent

NEW



3" dia @ 8' = ± 34 kips

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R502.2.2 Decks



Requires that deck design accounts for vertical loading for 40# LL and 10# DL.

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502.2.2.1 Ledger attachments for vertical load

TABLE R502.2.2.1
FASTENER SPACING FOR A SOUTHERN PINE OR HEM-FIR DECK LEDGER
AND A 2-INCH NOMINAL SOLID-SAWN SPRUCE-PINE-FIR BAND JOIST^{c, d, g}
 (Deck live load = 40 psf, deck dead load = 10 psf)

JOIST SPAN	6' and less	6'1" to 8'	8'1" to 10'	10'1" to 12'	12'1" to 14'	14'1" to 16'	16'1" to 18'
Connection details	On-center spacing of fasteners ^{d, e}						
1/2 inch diameter lag screw with 15/32 inch maximum sheathing ^a	30	23	18	15	13	11	10
1/2 inch diameter bolt with 15/32 inch maximum sheathing	36	36	34	29	24	21	19
1/2 inch diameter bolt with 15/32 inch maximum sheathing and 1/2 inch stacked washers ^{b, h}	36	36	29	24	21	18	16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479kPa.

- a. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
- b. The maximum gap between the face of the ledger board and face of the wall sheathing shall be 1/2".
- c. Ledgers shall be flashed to prevent water from contacting the house band joist.
- d. Lag screws and bolts shall be staggered in accordance with Section R502.2.2.1.1.
- e. Deck ledger shall be minimum 2 - 8 pressure-preservative-treated No.2 grade lumber, or other approved materials as established by standard engineering practice.
- f. When solid-sawn pressure-preservative-treated deck ledgers are attached to a minimum 1 inch thick engineered wood product (structural composite lumber, laminated veneer lumber or wood structural panel band joist), the ledger attachment shall be designed in accordance with accepted engineering practice.
- g. A minimum 1 x 9 1/2 Douglas Fir laminated veneer lumber rimboard shall be permitted in lieu of the 2-inch nominal band joist.
- h. Wood structural panel sheathing, gypsum board sheathing or foam sheathing not exceeding 1 inch in thickness shall be permitted. The maximum distance between the face of the ledger board and the face of the band joist shall be 1 inch.

The IRC prescribes ledger attachment for 2X band joist.

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502.2.2.1 Ledger attachments for vertical load



Ledger attachment to proprietary floor systems must be certified by an RDP or.....

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CODE-EQUIVALENT DECK LEDGER-TO-BAND JOIST CONNECTIONS

Code Requirements

Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable. Such attachment shall not be accomplished by the use of ironails or nails subject to withdrawal.

IRC 2009
Section R602.2.2

Attachment of a deck ledger to a nominal 2x lumber band joist is permitted in accordance with Table R602.2.2.1 for decks supporting a 40 psf live load and 10 psf dead load.

IRC 2009
Section R602.2.2

Deck ledger connections not conforming to Table R602.2.2.1 shall be designed in accordance with accepted engineering practice. Girders supporting deck joists shall not be supported on deck ledgers or band joists. Deck ledgers shall not be supported on slabs or masonry veneer.

IRC 2009
Section R602.2.2

* Note: This file addresses deck ledger connections only. For a complete overview of all code-equivalent deck connections, including critical lateral load attachments to the structure, see our Deck Framing Connection Guide. Table R602.2.2.1 in the 2009 IRC was developed using shear design values for lag screws and through bolts that were derived from application testing. Application testing considered fastening a ledger over wood studs/joist sheathing into a band joist. The tested shear design values are significantly higher than values calculated by the NDS. When using alternative fasteners to replace those prescribed in IRC Table R602.2.2.1, it is important to compare them to appropriate design load conditions and compare them to appropriate fasteners to ensure adequate resistance to critical NDS lateral design values. See "Comparison of Shear Performance of Common

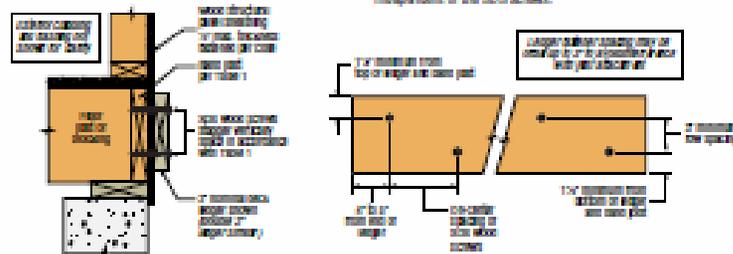
The 2009 International Residential Code® (2009 IRC) provides prescriptive fastener spacing for the attachment of a deck ledger to a band joist with 1/2" diameter lag screws or through bolts. The 2009 IRC Table R602.2.2.1 applies to 2-inch nominal solid-sawn lumber or minimum 1x3/4" DF LVL band joist material, and 40 psf live load/10 psf dead load applications. Other conditions are to be designed according to accepted engineering practice.*

Table 1 SDS screw spacing values (below) are equivalent to 2009 IRC Table R602.2.2.1, based on testing of the Strong-Drive® SDS screw with a factor of safety of 5.0. Table 1 also provides SDS screw spacing for a wider range of materials commonly used for band joists, and an alternate loading condition as required by some jurisdictions.

Table 1 – SDS Screw Spacing for a Sawn Lumber Deck Ledger to Band Joist

Loading Condition	Ledger Nominal Size (in.)	SDS Screw Length (in.)	Band Joist Material and Size	Maximum Deck Joist Span					
				Up to 6 ft.	Up to 8 ft.	Up to 10 ft.	Up to 12 ft.	Up to 14 ft.	Up to 16 ft.
				Maximum On-Center Spacing of Fasteners (in.)					
40 psf Live 10 psf Dead	2x	3/4"	2" Nominal Sawn Lumber	12"	10"	8"	6"	5"	4"
	2-2x4	5"	2" Nominal Sawn Lumber	12"	10"	8"	6"	5"	4"
40 psf Live 10 psf Dead	2x	3/4"	1" Min. Oriented Strand Board (OSB) Rim Board	12"	8"	7"	6"	5"	4"
	2x	3/4"	1 1/4" Min. Oriented Strand Board (OSB) Rim Board or 1 1/4" Min. Structural Composite Lumber	15"	11"	8"	7"	6"	5"
60 psf Live 10 psf Dead	2x	3/4"	2" Nominal Sawn Lumber	8"	7"	5"	4"	4"	3"
	2-2x4	5"	2" Nominal Sawn Lumber	8"	7"	5"	4"	3"	3"
40 psf Live 10 psf Dead	2x	3/4"	1" Min. Oriented Strand Board (OSB) Rim Board	8"	6"	5"	4"	3"	3"
	2x	3/4"	1 1/4" Min. Oriented Strand Board (OSB) Rim Board or 1 1/4" Min. Structural Composite Lumber	10"	8"	6"	5"	4"	3"

- Solid-sawn band joists shall be Spruce-Pine-Fir, Hem-Fir, Douglas Fir-Larch, or Southern Pine species. Ledger shall be Hem-Fir, Douglas Fir-Larch, or Southern Pine species.
- Fastener spacings are based on single fastener loading of the Strong-Drive® SDS screw with a safety factor of 5.0 and include NDS wet service adjustment factor.
- Multiple ledger plies shall be fastened together per code independent of the SDS screws.

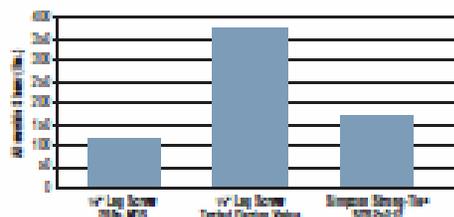


Ledger-to-Band Joist Assembly
(Wood-based lower floor assemblies, concrete wall/structure illustration purposes)

SDS Screw Spacing Detail

Comparison of Shear Performance of Common 2x Ledger Fasteners Spruce-Pine-Fir Lumber – Perpendicular to Grain Loading

The figures below compare the NDS lag screw values, the tested lag screw values used in the 2009 IRC (source: 2009 IRC spacing values) and the Simpson Strong-Tie® SDS Screw.



- 1/2" Lag screw shear design value based on 2-ply pair 2009 NDS. Minimum main member penetration = 2" (4D).
- 1/2" Lag screw shear tested design value based on engineering calculation of IRC Table R602.2.2.1.
- SDS screw values based on Simpson Strong-Tie® Wood Construction Connection catalog, page 29 and verified per application testing.
- Assumption: Spruce-Pine-Fir lumber with perpendicular to grain loading in wet service.

...submit a proprietary or tested fastening detail.

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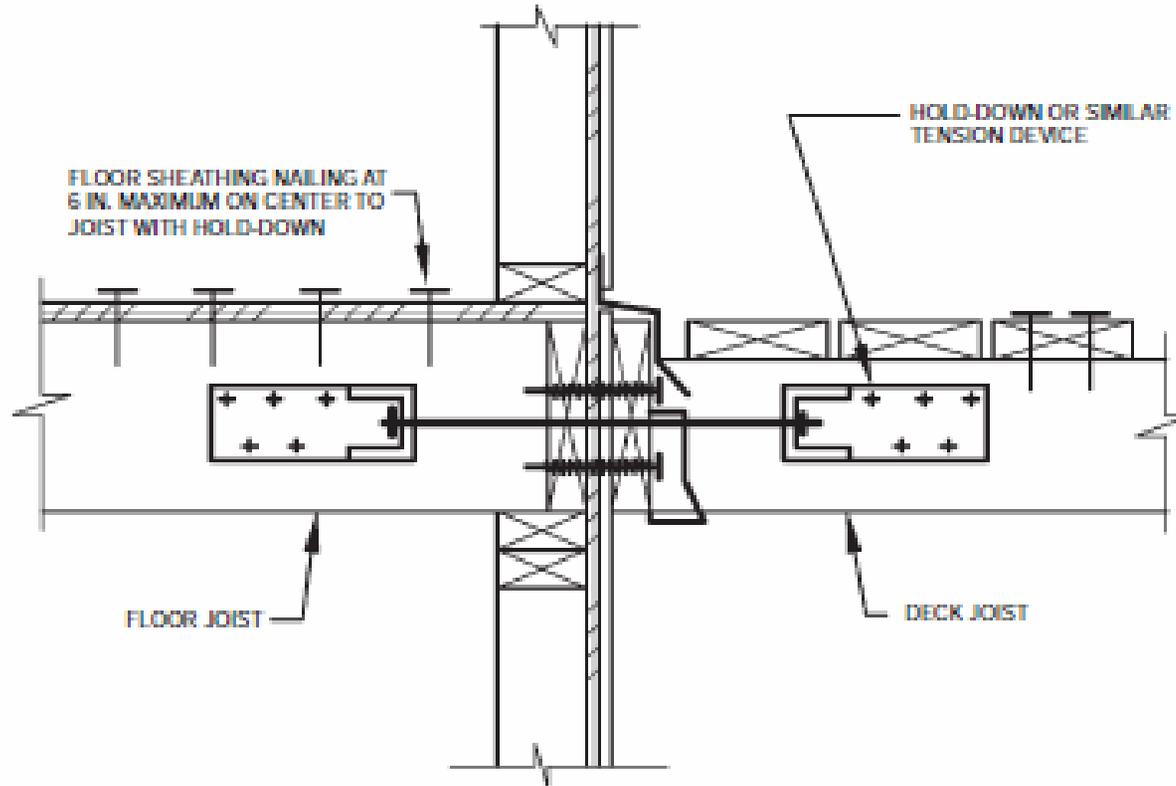
502.2.2.2.3 Ledger attachments for lateral load



2009 IRC CODE UPDATE TRAINING

502.2.2.2.3 Ledger attachments for lateral load

PRESCRIBED METHOD



25.4 mm.

FIGURE R502.2.2.3
DECK ATTACHMENT FOR LATERAL LOADS

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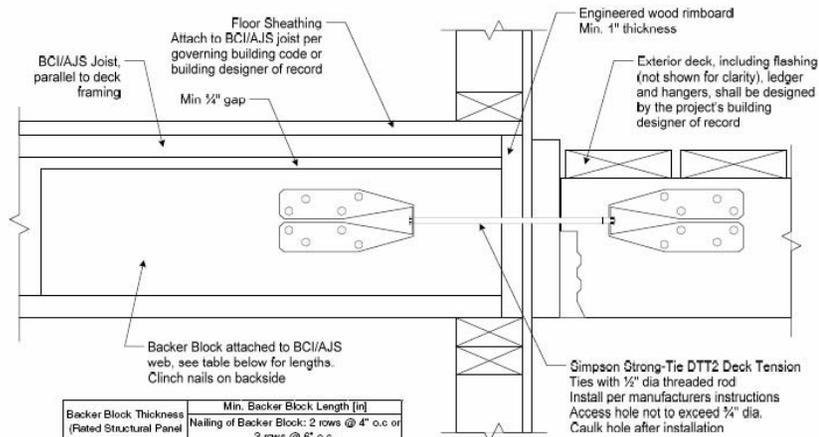
502.2.2.2.3 Ledger attachments for lateral load



Specific Application Detail

Lateral Load Deck Attachment to BCI/AJS Joists

The 2009 International Residential Code (IRC) includes a new provision for resisting lateral forces of an exterior deck which is attached to the exterior of a structure. Specifically, IRC 502.2.2.3 requires connections at two locations that resist a minimum lateral load of 1500 lbs per connection. The following details show the proper connection to interior BCI/AJS framing.



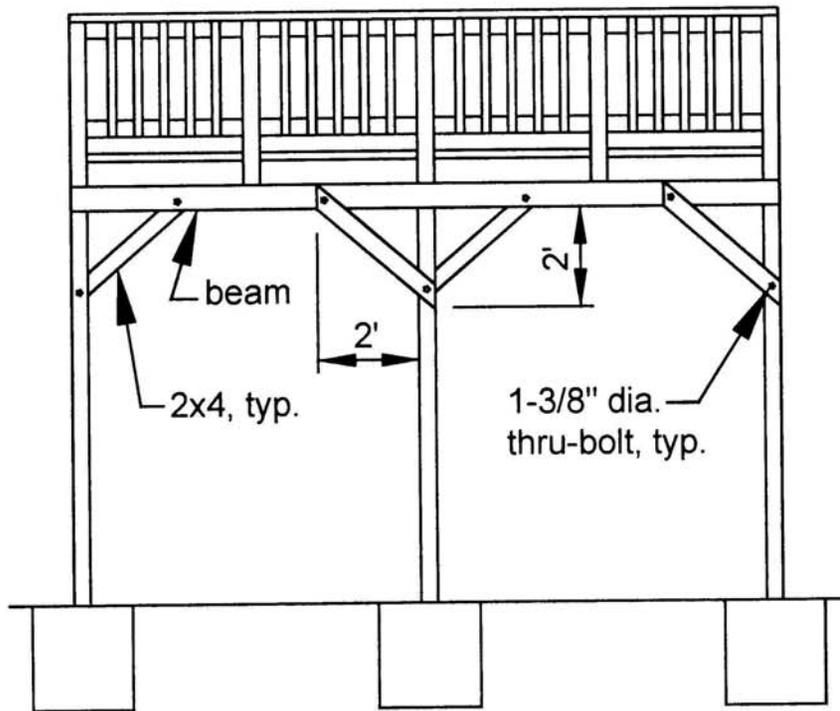
Backer Block Thickness (Fitted Structural Panel or Rimboard)	Min. Backer Block Length [in]			
	Nailing of Backer Block: 2 rows @ 4" o.c. or 3 rows @ 6" o.c.			
	8d Box	8d Cmn	10d Box	10d Cmn
23/32" Backer	62	52	52	46
7/8" to 1 1/8" Backer	62	50	52	42

Note: Detail valid for 1500 lb lateral force per 2009 IRC Section 502.2.2.3

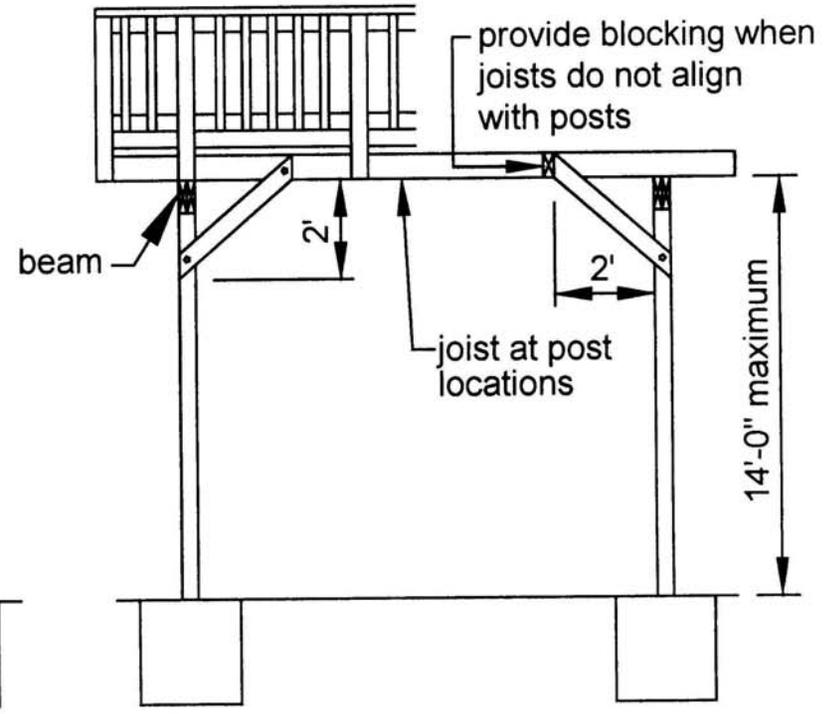
Most structural composite vendors provide design details For use of tension devices.

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...OR OTHER METHOD APPROVED BY THE BUILDING OFFICIAL.



BRACING PARALLEL TO BEAM



BRACING PERPENDICULAR TO BEAM

2009 IRC CODE UPDATE TRAINING

Table R602.3(5) Wood Studs Sizes

Wood stud table:

Column heading changed
from:

Max spacing when supporting
floor(s), roof and ceiling
(i.e. rafters)

to:

Max spacing when supporting...
floor(s) plus roof-ceiling assembly
or a habitable attic assembly
(i.e. room truss)



NEW

2009 IRC CODE UPDATE TRAINING

Table R602.3(5) Wood Studs Sizes

Resolves code issue on how to handle roof trusses.



Example 2

Example 1

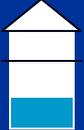
2009 IRC CODE UPDATE TRAINING

Table R602.3(5) Wood Studs Sizes

Example 1:

- Walkout basement
- Supporting two floors and a habitable attic
- Rafter assembly,
2x6 @ 16" o.c.
- With trusses,
2x6 @ 16" o.c.



Spacing of studs		
		
2x4	16 ^c	—
2x6	24	16

No change

2009 IRC CODE UPDATE TRAINING

Table R602.3(5) Wood Studs Sizes

Example 2:

Wall supporting one floor
and a habitable attic

- Rafters: **2x4 @ 16" o.c.**
- Habitable attic (i.e. room) trusses $\leq 32'$ long: **2x4 @ 16" o.c.**
- Habitable attic (i.e. room) trusses $> 32'$ long
2x6 @ 16" o.c.

(footnote c requires you to go 2x6
if trusses are $>32'$ long)

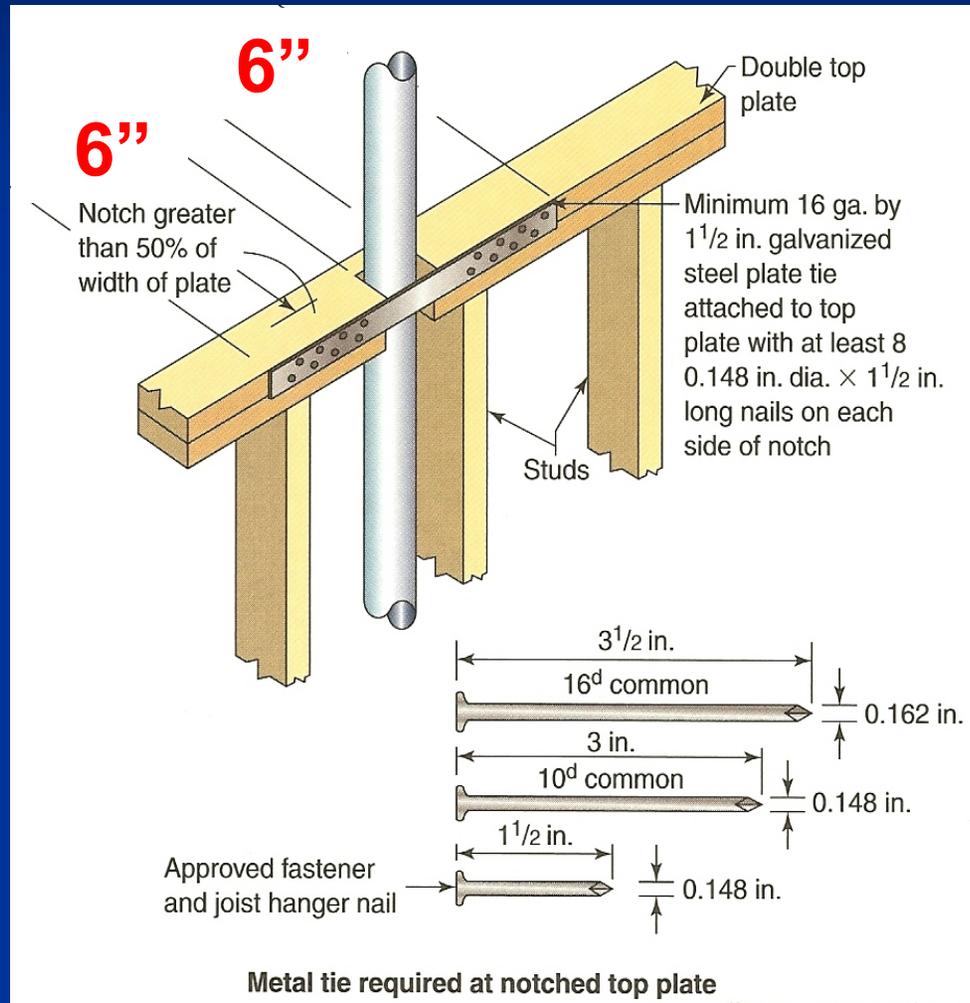


Spacing of studs		
		
2x4	16 ^c	—
2x6	24	16

NEW

2009 IRC CODE UPDATE TRAINING

R602.6.1: Drilling and Notching of Top Plate



Strap across top plate notch must extend a min. of 6" past the cut on both sides

NEW

2009 IRC CODE UPDATE TRAINING

602.10 WALL BRACING



NOT COVERED IN THIS COURSE

2009 IRC CODE UPDATE TRAINING

R612.2: Window Sills

Sill height for an operable window located > 72 " above grade shall be ≥ 18 " above finished floor

Exceptions

When window:

1. Will not allow 4" sphere to pass
2. Has guard devices
3. Has fall prevention devices
 1. Fall prevention screens
 2. Window guards
4. Has opening limiting devices



NEW

2009 IRC CODE UPDATE TRAINING

R612.4.2 Operation for emergency escape

Window opening *limiting devices* for *EEROs* shall comply with all of the following:

1. Operate without keys, tools or special knowledge
2. Require $\leq 15\#$'s of force
3. Operate in all types of weather
4. Be clearly identified for use in emergencies
5. Maintain minimum net clear opening



NEW

2009 IRC CODE UPDATE TRAINING

R613 SIPs Panels

Structural Insulated Panel (SIP) requirements:

Refer to your code books

NEW



2009 IRC CODE UPDATE TRAINING

R703 & Table R703.4 Weather Resistant Ext. Covering

Weather Resistance changed to:

Water Resistance
AND
Wind Resistance

- Water-resistive barrier required behind masonry veneer (even with 1" air gap).

NEW



2009 IRC CODE UPDATE TRAINING

R703 & Table R703.4 Weather Resistant Ext. Covering

NEW

- “Anchored veneer” now includes brick, concrete, masonry, and stone anchored to the structure

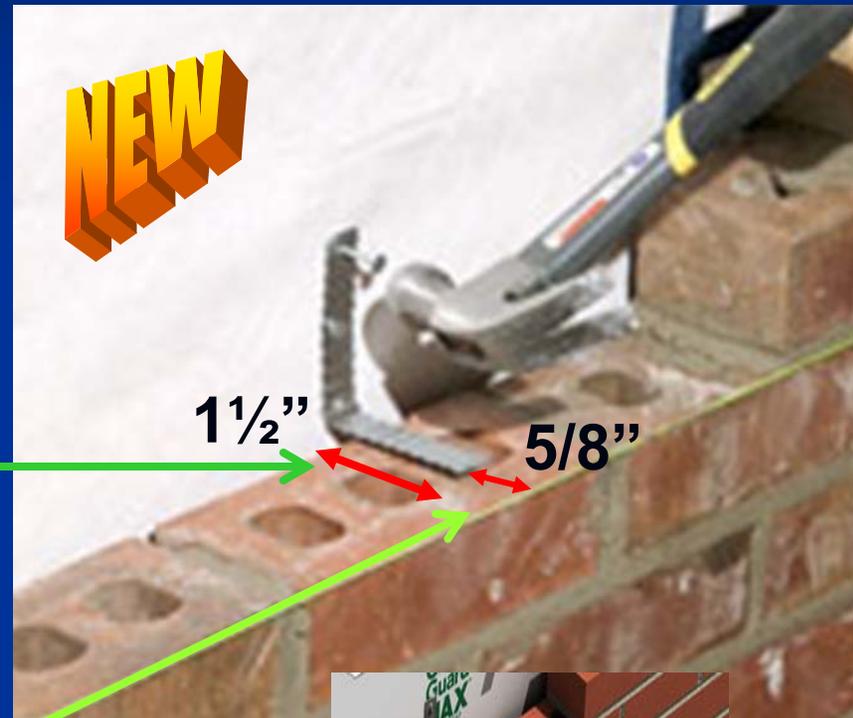


2009 IRC CODE UPDATE TRAINING

703.7.4: Masonry veneer anchorage

Masonry veneer shall be anchored to the supporting wall with corrosion-resistant metal ties:

- Minimum 1½" into mortar or grout
- Minimum 5/8" mortar or grout cover on the outside



Insufficient embedment length ⁷⁶

2009 IRC CODE UPDATE TRAINING

703.7.3: Masonry veneer

Reminder:

Masonry veneer can not support any vertical load other than the dead load of the veneer above.

You cannot attach to or thru masonry veneer, especially at:

- Decks
- Porches
- Roof loads



2009 IRC CODE UPDATE TRAINING

R703.11.1.1: Vinyl siding

Vinyl soffit panels shall be individually fastened to a:

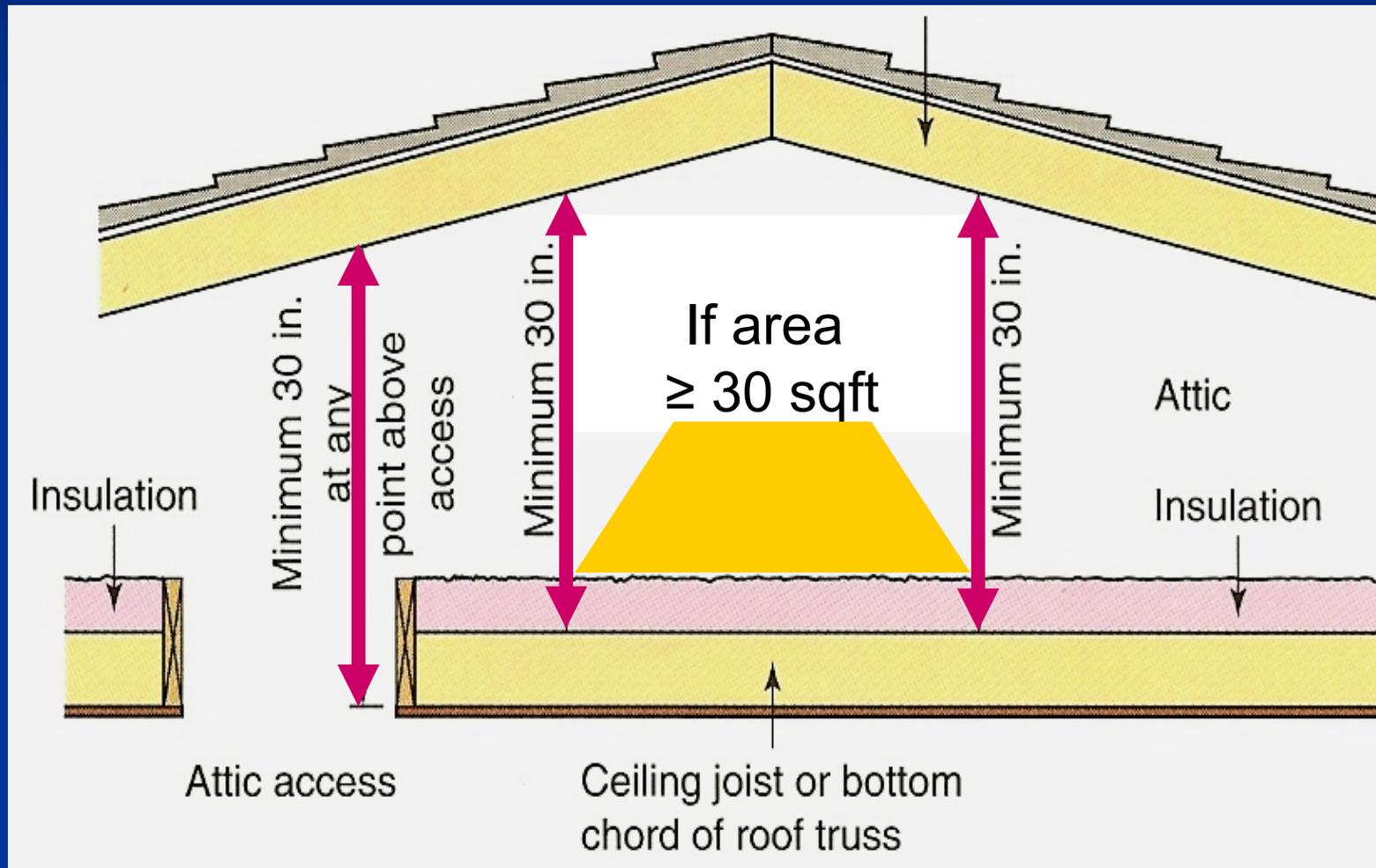
New

- nailing strip
 - fascia
 - sub-fascia component
- OR
- as specified by manufacturer's instructions



2009 IRC CODE UPDATE TRAINING

R807: Attic Access



2009 IRC CODE UPDATE TRAINING

R905.2.8.3: Sidewall Flashing

Step flashing requirements:

- 4" high x 4" wide minimum flashing against vertical sidewalls
- Sidewall flashing shall terminate in a manner that directs water away from the wall and onto the roof and/or into the gutter



NEW