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Class Title: Post & Beam (Pole Barn) Construction

Class Category: Technical

Registration Category: BO/BI/PR

Hours Approved: 03 Technical

Instructor: Ken LaBelle

Instructor # 119



Marginal Markings

| Indicate a technical change from the requirements of the 2012 edition.

→ . Indicator deletion an entire section, paragraph, exception or table has been deleted or an item in a list of items or a table has been deleted.

|| Double vertical lines in the margin denote amendments and additions promulgated by the State

Marginal Markings

* Identifies sections of the 2012 International Building Code not adopted by the State of Michigan.

•• Indicates that the text or table immediately following it has been relocated there from elsewhere

Italicized

The definition found in Chapter 2

Residential Code

SECTION R101

GENERAL: R101.1 Title. These provisions shall be known and cited as the Michigan residential code for 1- and 2-family dwellings and will be referred to as "the code."

R101.2 Scope. The provisions of the Michigan residential code for 1- and 2-family dwellings shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached 1- and 2-family dwellings and townhouses not more than 3 stories above grade plane in height with a separate means of egress and their accessory structures.

Residential Code

ACCESSORY STRUCTURE. A structure that is accessory to and incidental to that of the dwelling(s) and that is located on the same lot.

R102.4 Referenced codes and standards.

R102.4 Referenced codes and standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections R102.4.1 and R102.4.2.

R102.4 Referenced codes and standards

Exception: Where enforcement of a code provision would violate the conditions of the listing of the equipment or appliance, the conditions of the listing and manufacturer's instructions shall apply.

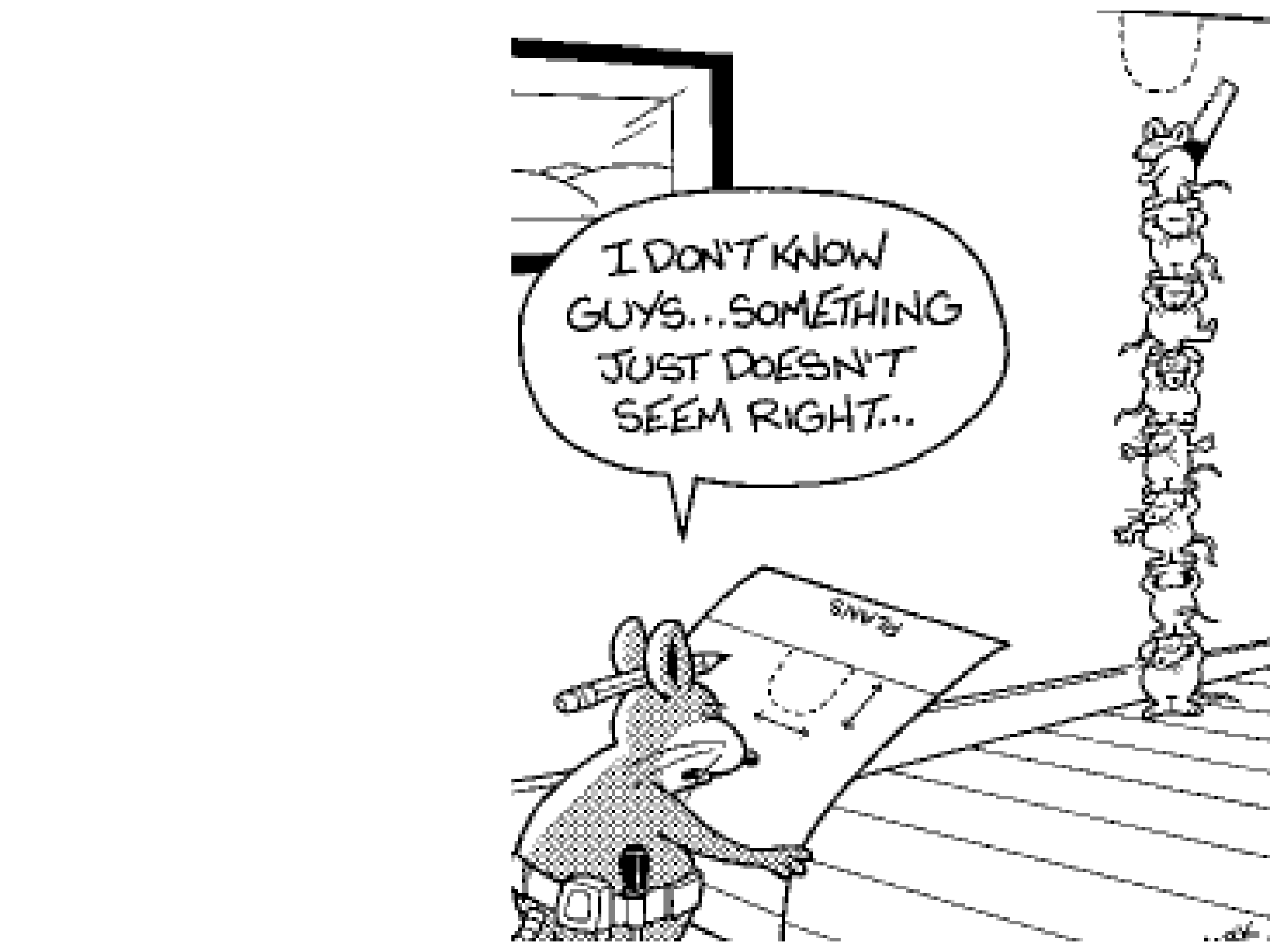
R102.4.1 Conflicts. Where conflicts occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

R102.4.2 Provisions in referenced codes and standards.

Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.

CHAPTER 3

BUILDING PLANNING

A black and white cartoon panel. In the foreground, a character with a large nose and a mustache, wearing a patterned shirt and a belt with a buckle, is looking at a large sheet of paper. The paper has the word "SHEEP" written on it. A speech bubble above the character contains the text: "I DON'T KNOW GUYS... SOMETHING JUST DOESN'T SEEM RIGHT...". In the background, a long, thin line of sheep is stretching across the room, with one sheep at the end of the line holding a long stick or pole. The floor is made of wooden planks.

I DON'T KNOW
GUYS... SOMETHING
JUST DOESN'T
SEEM RIGHT...

R301.1 Application.

Buildings and structures, and all parts thereof, shall be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code. The construction of buildings and structures in accordance with the provisions of this code shall result in a system that provides a complete load path that meets all requirements for the transfer of all loads from their point of origin through the load-resisting elements to the foundation. Buildings and structures **constructed** as prescribed by this code are deemed to comply with the requirements of this section.

R301.1.1 Alternative provisions

As an alternative to the requirements in Section R301.1 the following standards are permitted subject to the limitations of this code and the limitations therein. Where engineered design is used in conjunction with these standards, the design shall comply with the International Building Code.

1. American Forest and Paper Association (AF&PA) Wood Frame Construction Manual (WFCM).
2. American Iron and Steel Institute (AISI) Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-Family Dwellings (AISI S230).
3. ICC-400 Standard on the Design and Construction of Log Structures.

R301.1.2 Construction systems.

The requirements of this code are based on platform and balloon-frame construction for light-frame buildings. The requirements for concrete and masonry buildings are based on a balloon framing system. Other framing systems must have equivalent detailing to ensure force transfer, continuity and compatible deformations.

R301.1.3 Engineered design. Where a building of otherwise conventional construction contains structural elements exceeding the limits of Section R301 or otherwise not conforming to this code, these elements shall be designed in accordance with accepted engineering practice. The extent of such design need only demonstrate compliance of nonconventional elements with other applicable provisions and shall be compatible with the performance of the conventional framed system. Engineered design in accordance with the *International Building Code* is permitted for buildings and structures, and parts thereof, included in the scope of this code.

So where does a pole building fit?



FOUNDATIONS

R401.1 Application. The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for all buildings.

Exception: The provisions of this chapter shall be permitted to be used for wood foundations only in the following situations:

1. In buildings that have no more than two floors and a roof.
2. Where interior basement and foundation walls are constructed at intervals not exceeding 50 feet (15 240 mm).

FOUNDATIONS

R401.2 Requirements. Foundation construction shall be capable of accommodating all loads according to Section R301 and of transmitting the resulting loads to the supporting soil... Gravel fill used as footings for wood and precast concrete foundations shall comply with Section R403.

FOUNDATIONS

R401.4 Soil tests. Where quantifiable data created by accepted soil science methodologies indicate expansive, compressible, shifting or other questionable soil characteristics are likely to be present, the building official shall determine whether to require a soil test to determine the soil's characteristics at a particular location. This test shall be done by an approved agency using an approved method.

FOUNDATIONS

R402.2 Concrete. Concrete shall have a minimum specified compressive strength as shown in Table R402.2. Concrete subject to moderate or severe weathering as indicated in Table R301.2(1) shall be air entrained as specified in Table R402.2.

FOUNDATIONS

TABLE R402.2
MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE

| TYPE OR LOCATION OF CONCRETE CONSTRUCTION | MINIMUM SPECIFIED COMPRESSIVE STRENGTH ^a (f'_c) | | |
|--|--|--------------------------|--------------------------|
| | Weathering Potential ^b | | |
| | Negligible | Moderate | Severe |
| Basement walls, foundations and other concrete not exposed to the weather | 2,500 | 2,500 | 2,500 ^c |
| Basement slabs and interior slabs on grade, except garage floor slabs | 2,500 | 2,500 | 2,500 ^c |
| Basement walls, foundation walls, exterior walls and other vertical concrete work exposed to the weather | 2,500 | 3,000 ^d | 3,000 ^d |
| Porches, carport slabs and steps exposed to the weather, and garage floor slabs | 2,500 | 3,000 ^{d, e, f} | 3,500 ^{d, e, f} |

FOUNDATIONS

**TABLE R402.2
MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE**

| TYPE OR LOCATION OF CONCRETE CONSTRUCTION | MINIMUM SPECIFIED COMPRESSIVE STRENGTH ^a (f'_c) | | |
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| | Weathering Potential ^b | | |
| | Negligible | Moderate | Severe |
| Basement walls, foundations and other concrete not exposed to the weather | 2,500 | 2,500 | 2,500 ^c |
| Basement slabs and interior slabs on grade, except garage floor slabs | 2,500 | 2,500 | 2,500 ^c |
| Basement walls, foundation walls, exterior walls and other vertical concrete work exposed to the weather | 2,500 | 3,000 ^d | 3,000 ^d |
| Porches, carport slabs and steps exposed to the weather, and garage floor slabs | 2,500 | 3,000 ^{d, e, f} | 3,500 ^{d, e, f} |

For SI: 1 pound per square inch = 6.895 kPa.

- a. Strength at 28 days psi.
- b. See Table R301.2(1) for weathering potential.
- c. Concrete in these locations that may be subject to freezing and thawing during construction shall be air-entrained concrete in accordance with Footnote d.
- d. Concrete shall be air-entrained. Total air content (percent by volume of concrete) shall be not less than 5 percent or more than 7 percent.
- e. See Section R402.2 for maximum cementitious materials content.
- f. For garage floors with a steel troweled finish, reduction of the total air content (percent by volume of concrete) to not less than 3 percent is permitted if the specified compressive strength of the concrete is increased to not less than 4,000 psi.

**TABLE R301.2(1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA**

| GROUND SNOW LOAD | WIND SPEED ^d (mph) | SEISMIC DESIGN CATEGORY ^f | SUBJECT TO DAMAGE FROM | | | WINTER DESIGN TEMP ^e | ICE BARRIER UNDERLAYMENT REQUIRED ^h | FLOOD HAZARDS ^g | AIR FREEZING INDEX ⁱ | MEAN ANNUAL TEMP ^j |
|------------------|-------------------------------|---|-------------------------|-------------------------------|----------------------|---------------------------------|--|----------------------------|---------------------------------|-------------------------------|
| | | | Weathering ^a | Frost line depth ^b | Termite ^c | | | | | |
| Table R301.2(5) | 90 | See Section R301.2.2.1 and Figure R301.2(2) | Severe | 42" See Note b | Figure R301.2(6) | See Note e | Yes | See Note g | Figure R403.3(2) | See Note j |

For SI: 1 pound per square foot = 0.0479 kN/m², 1 mile per hour = 1.609 km/h.

Weathering may require a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this code. The weathering column shall be filled in with the weathering index (i.e., “negligible,” “moderate” or “severe”) for concrete as determined from the weathering probability map [Figure R301.2(3)]. The grade of masonry units shall be determined from ASTM C34, C55, C62, C73, C90, C129, C145, C216 or C652 as listed in Chapter 44.

FOOTINGS

R403.1 General. **All exterior** walls shall be supported on continuous solid or fully grouted masonry or concrete footings, crushed stone footings, wood foundations, or other approved structural systems which shall be of sufficient design to accommodate all loads according to Section R301 and

FOOTINGS

R403.1 and to transmit the resulting loads to the soil within the limitations as determined from the character of the soil. Footings shall be supported on undisturbed natural soils or engineered fill.

Concrete footing shall be designed and constructed in accordance with the provisions of Section R403 or in accordance with ACI 332.



An ACI Standard

Residential Code Requirements for Structural Concrete (ACI 332-14) and Commentary

Reported by ACI Committee 332

FOOTINGS

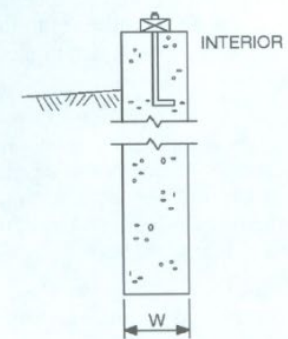
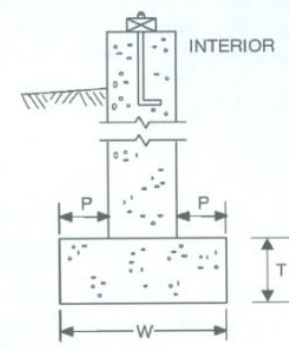
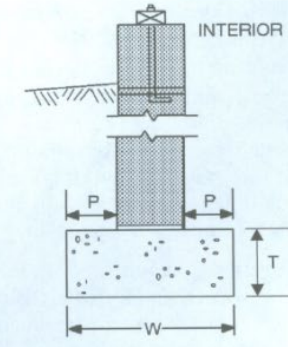
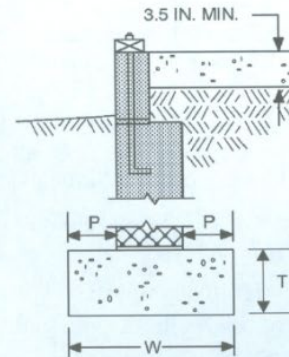
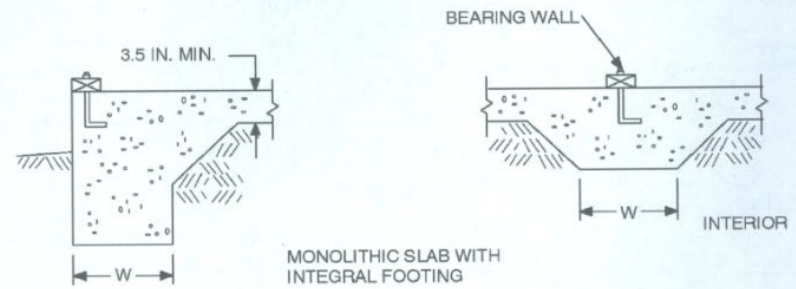
R403.1.1 Minimum size. The minimum width, W , and thickness, T , for concrete footings shall be in accordance with Tables R403.1(1) through R403.1(3) and Figure R403.1(1) or R403.1.3, as applicable.

FOOTINGS

R403.1.1 Minimum size. The minimum width, W , and thickness, T , for concrete footings shall be in accordance with Tables R403.1(1) through R403.1(3) and Figure R403.1(1) or R403.1.3, as applicable.

The footing width shall be based on the load-bearing value of the soil in accordance with Table R401.4.1.

FOOTINGS



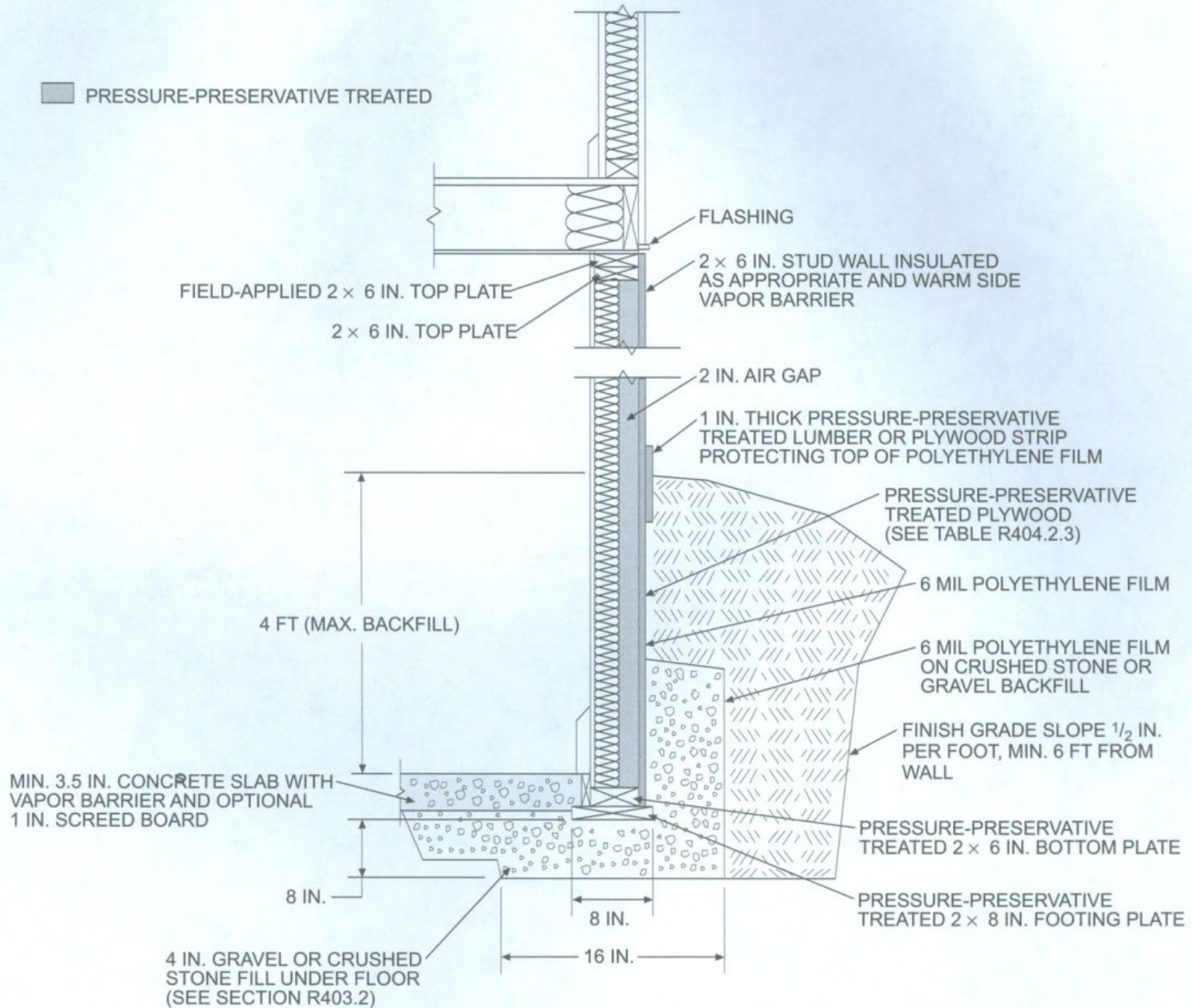
SI: 1 inch = 25.4 mm.

FIGURE R403.1(1)
CONCRETE AND MASONRY FOUNDATION DETAILS

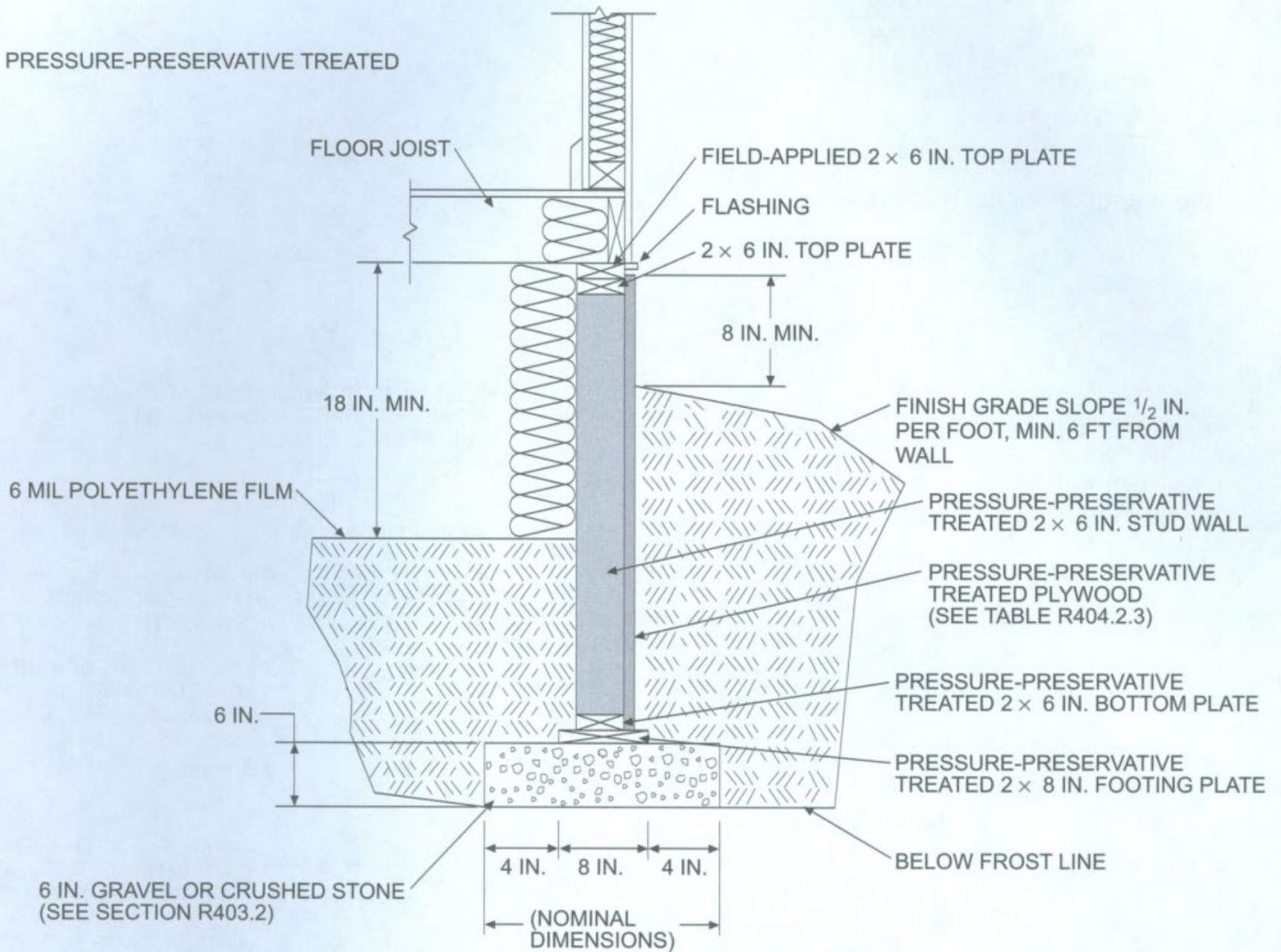
FOOTINGS

Footings for wood foundations. Footings for wood foundations shall be in accordance with Figures R403.1(2) and R403.1(3)

■ PRESSURE-PRESERVATIVE TREATED



■ PRESSURE-PRESERVATIVE TREATED



FOOTINGS

R403.1(3). Gravel shall be washed and well graded. The maximum size stone shall not exceed 3/4 inch (19.1 mm). Gravel shall be free from organic, clayey or silty soils. Sand shall be coarse, not smaller than 1/16 inch (1.6 mm) grains and shall be free from organic, clayey or silty soils. Crushed stone shall have a maximum size of 1/2 inch (12.7 mm).

What about “POLE BUILDING” Footing

AWC

American Wood Council
222 Catocin Circle, Suite 201
Leesburg, VA 20175

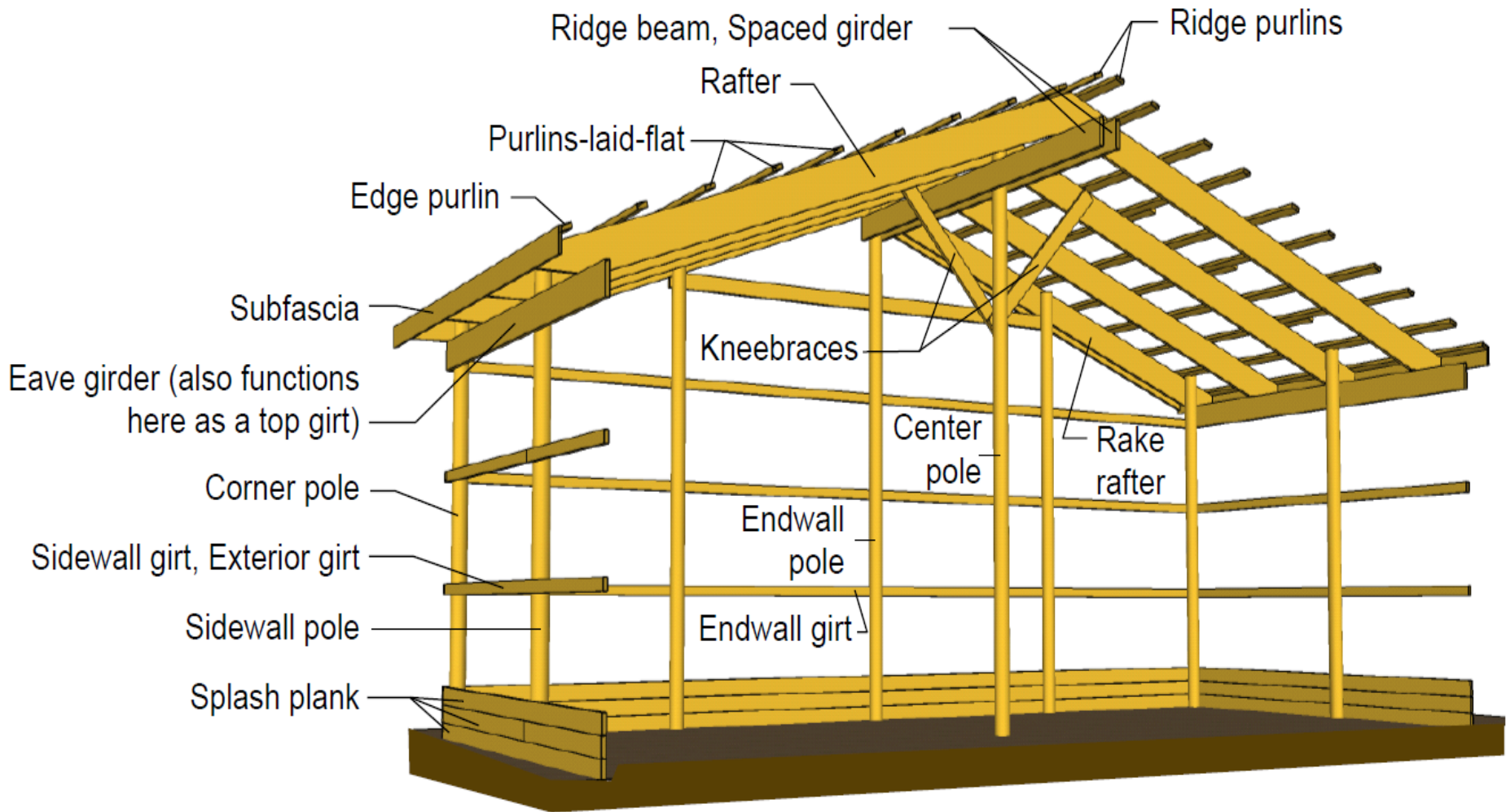
Standard
reference
number

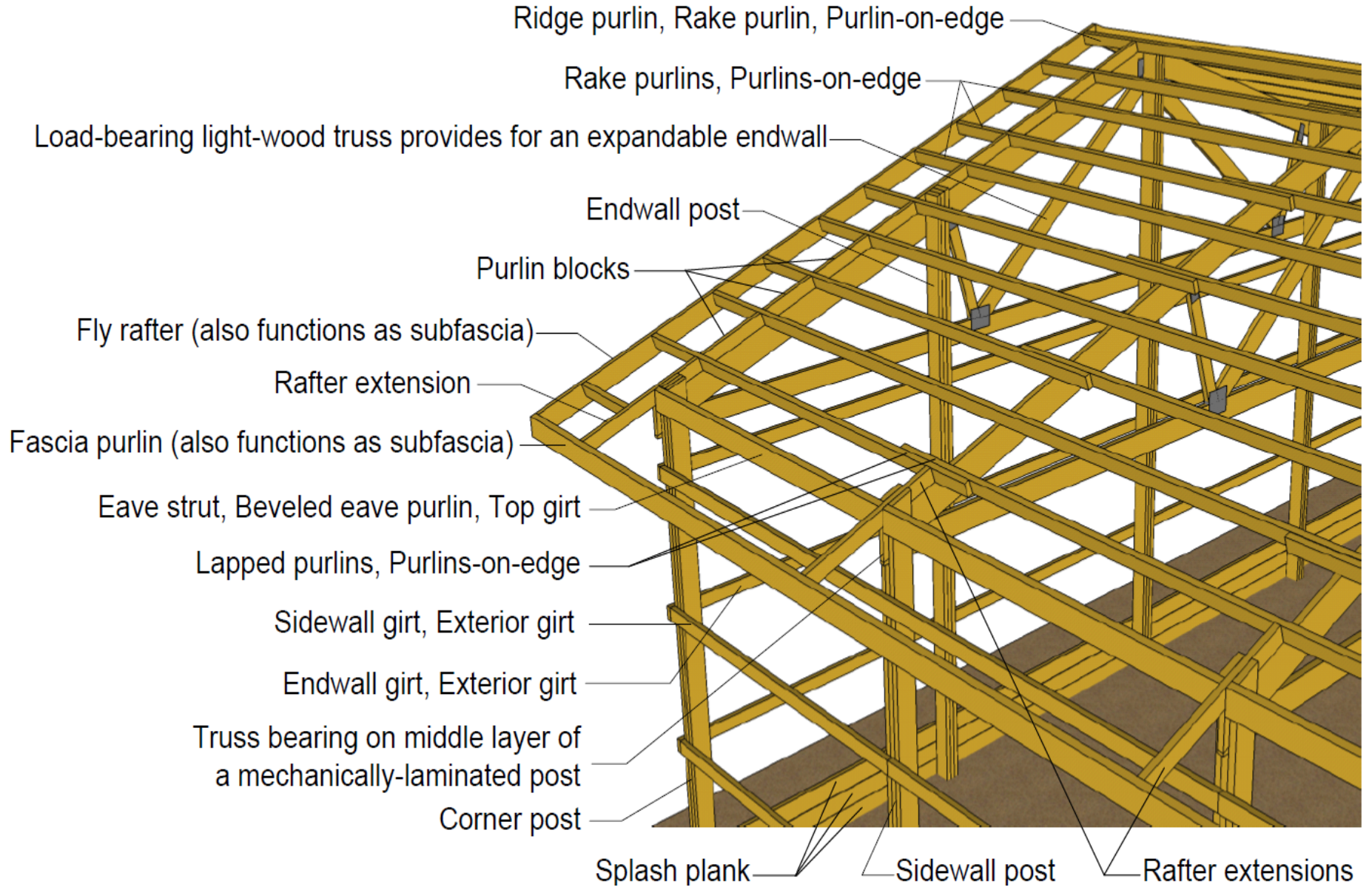
Title

AWC STJR—2015

Span Tables for Joists and Rafters

Framing





WOOD WALL FRAMING

R602.1 General. Wood and wood-based products used for load-supporting purposes shall conform to the applicable provisions of this section.

WOOD WALL FRAMING

R602.1.1 Sawn lumber. Sawn lumber shall be identified by a grade mark of an accredited lumber grading or inspection agency and have design values certified by an accreditation body that complies with DOC PS 20. In lieu of a grade mark, a certification of inspection issued by a lumber grading or inspection agency meeting the requirements of this section shall be accepted.

WOOD WALL FRAMING

R602.3 Design and construction. Exterior walls of wood frame construction shall be designed and constructed in accordance with the provisions of this chapter and Figures R602.3(1) and R602.3(2), or in accordance with AWC NDS. Components of exterior walls shall be fastened in accordance with Tables R602.3(1) through R602.3(4).

FIGURE R602.3(1) TYPICAL WALL, FLOOR AND ROOF FRAMING

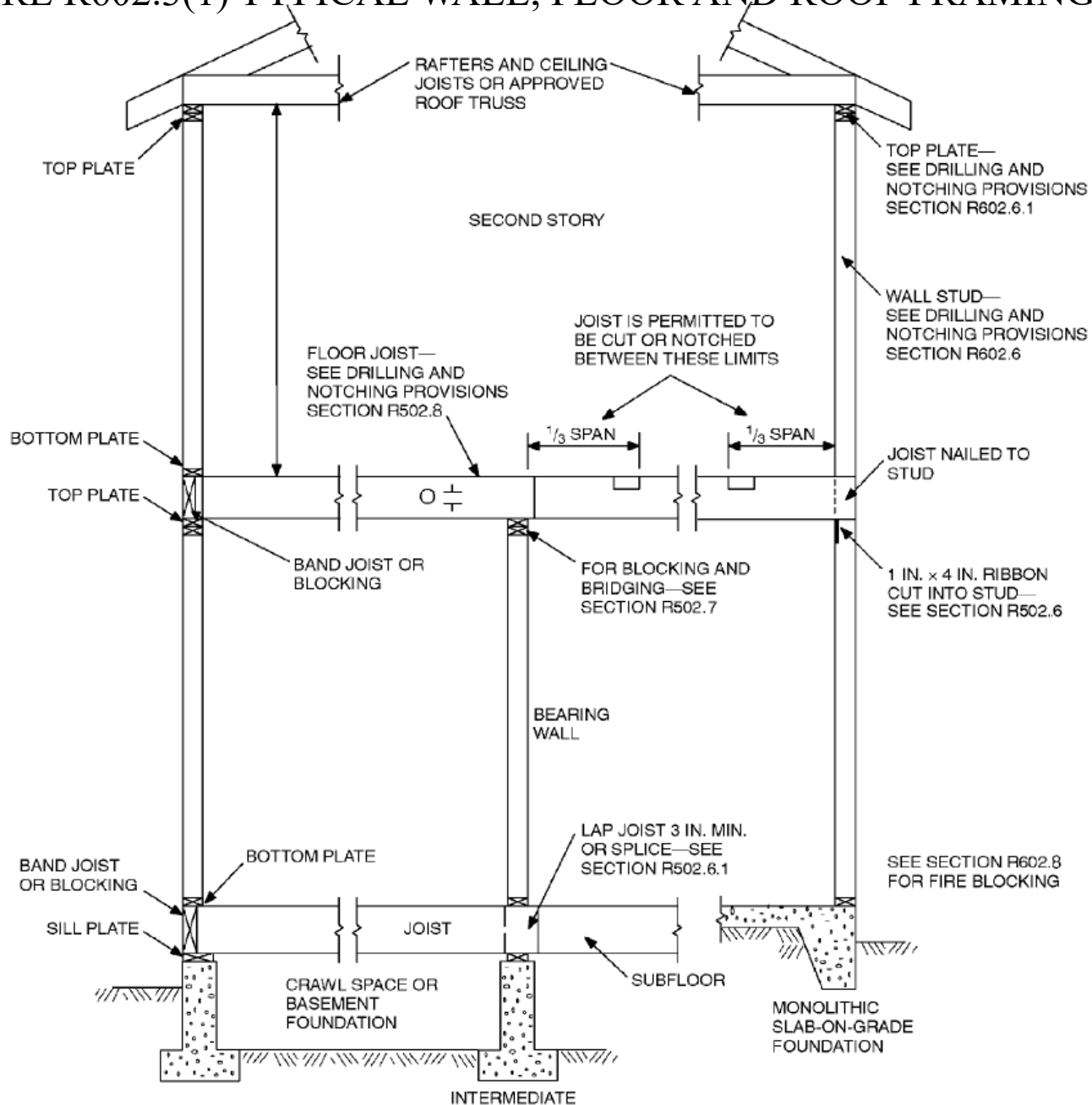
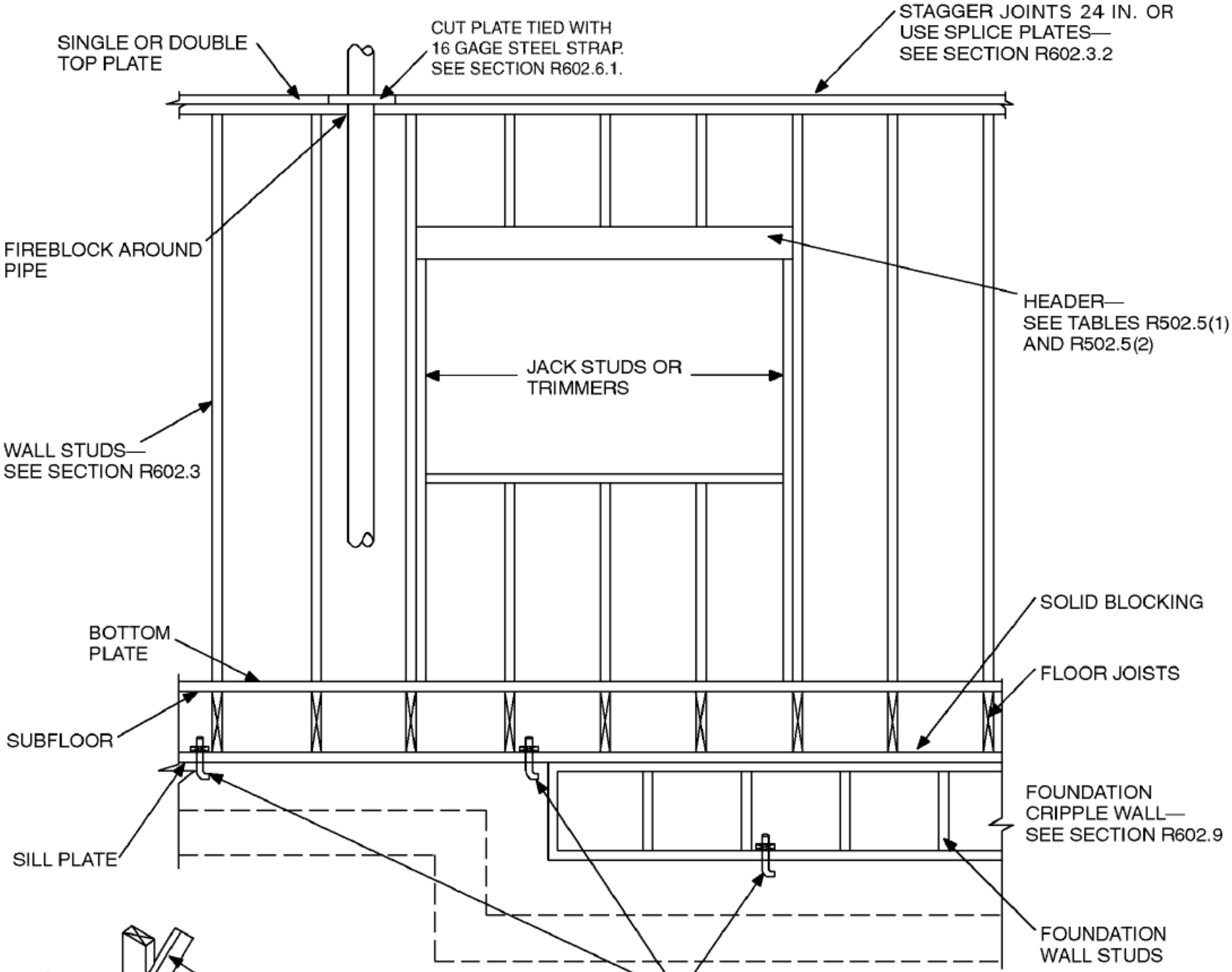


FIGURE R602.3(2) FRAMING DETAILS



WALL CONSTRUCTION

**TABLE R602.3(1)
FASTENING SCHEDULE**

| ITEM | DESCRIPTION OF BUILDING ELEMENTS | NUMBER AND TYPE OF FASTENER ^{a, b, c} | SPACING AND LOCATION |
|-------------|---|---|--|
| Roof | | | |
| 1 | Blocking between ceiling joists or rafters to top plate | 4-8d box (2 ¹ / ₂ " × 0.113") or 3-8d common (2 ¹ / ₂ " × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails | Toe nail |
| 2 | Ceiling joists to top plate | 4-8d box (2 ¹ / ₂ " × 0.113"); or 3-8d common (2 ¹ / ₂ " × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails | Per joist, toe nail |
| 3 | Ceiling joist not attached to parallel rafter, laps over partitions [see Sections R802.3.1, R802.3.2 and Table R802.5.1(9)] | 4-10d box (3" × 0.128"); or 3-16d common (3 ¹ / ₂ " × 0.162"); or 4-3" × 0.131" nails | Face nail |
| 4 | Ceiling joist attached to parallel rafter (heel joint) [see Sections R802.3.1 and R802.3.2 and Table R802.5.1(9)] | Table R802.5.1(9) | Face nail |
| 5 | Collar tie to rafter, face nail or 1 ¹ / ₄ " × 20 ga. ridge strap to rafter | 4-10d box (3" × 0.128"); or 3-10d common (3" × 0.148"); or 4-3" × 0.131" nails | Face nail each rafter |
| 6 | Rafter or roof truss to plate | 3-16d box nails (3 ¹ / ₂ " × 0.135"); or 3-10d common nails (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails | 2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss ¹ |

**TABLE R602.3(2)
ALTERNATE ATTACHMENTS TO TABLE R602.3(1)**

| NOMINAL MATERIAL THICKNESS (inches) | DESCRIPTION ^{a, b} OF FASTENER AND LENGTH (inches) | SPACING ^c OF FASTENERS | |
|--|--|-----------------------------------|-----------------------------------|
| | | Edges (inches) | Intermediate supports (inches) |
| Wood structural panels subfloor, roof^g and wall sheathing to framing and particleboard wall sheathing to framing^f | | | |
| Up to 1/2 | Staple 15 ga. 1 ³ / ₄ | 4 | 8 |
| | 0.097 - 0.099 Nail 2 ¹ / ₄ | 3 | 6 |
| | Staple 16 ga. 1 ³ / ₄ | 3 | 6 |
| 19/32 and 5/8 | 0.113 Nail 2 | 3 | 6 |
| | Staple 15 and 16 ga. 2 | 4 | 8 |
| | 0.097 - 0.099 Nail 2 ¹ / ₄ | 4 | 8 |
| 23/32 and 3/4 | Staple 14 ga. 2 | 4 | 8 |
| | Staple 15 ga. 1 ³ / ₄ | 3 | 6 |
| | 0.097 - 0.099 Nail 2 ¹ / ₄ | 4 | 8 |
| | Staple 16 ga. 2 | 4 | 8 |
| 1 | Staple 14 ga. 2 ¹ / ₄ | 4 | 8 |
| | 0.113 Nail 2 ¹ / ₄ | 3 | 6 |
| | Staple 15 ga. 2 ¹ / ₄ | 4 | 8 |
| | 0.097 - 0.099 Nail 2 ¹ / ₄ | 4 | 8 |

TABLE R602.3(3)
REQUIREMENTS FOR WOOD STRUCTURAL PANEL WALL SHEATHING USED TO RESIST WIND PRESSURES^{a, b, c}

| MINIMUM NAIL | | MINIMUM WOOD STRUCTURAL PANEL SPAN RATING | MINIMUM NOMINAL PANEL THICKNESS (inches) | MAXIMUM WALL STUD SPACING (inches) | PANEL NAIL SPACING | | ULTIMATE DESIGN WIND SPEED V_{ult} (mph) | | |
|------------------------------|----------------------|---|--|------------------------------------|---------------------|---------------------|--|-----|-----|
| Size | Penetration (inches) | | | | Edges (inches o.c.) | Field (inches o.c.) | Wind exposure category | | |
| | | | | | | | B | C | D |
| 6d Common (2.0" × 0.113") | 1.5 | 24/0 | $\frac{3}{8}$ | 16 | 6 | 12 | 140 | 115 | 110 |
| 8d Common (2.5" × 0.131") | 1.75 | 24/16 | $\frac{7}{16}$ | 16 | 6 | 12 | 170 | 140 | 135 |
| | | | | 24 | 6 | 12 | 140 | 115 | 110 |

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

- a. Panel strength axis parallel or perpendicular to supports. Three-ply plywood sheathing with studs spaced more than 16 inches on center shall be applied with panel strength axis perpendicular to supports.
- b. Table is based on wind pressures acting toward and away from building surfaces in accordance with Section R301.2. Lateral bracing requirements shall be in accordance with Section R602.10.
- c. Wood structural panels with span ratings of Wall-16 or Wall-24 shall be permitted as an alternate to panels with a 24/0 span rating. Plywood siding rated 16 o.c. or 24 o.c. shall be permitted as an alternate to panels with a 24/16 span rating. Wall-16 and Plywood siding 16 o.c. shall be used with studs spaced not more than 16 inches on center.

TABLE R602.3(4)
ALLOWABLE SPANS FOR PARTICLEBOARD WALL SHEATHING^a

| THICKNESS (inch) | GRADE | STUD SPACING (inches) | |
|---------------------|-------------------|--------------------------------|------------------------------------|
| | | When siding is nailed to studs | When siding is nailed to sheathing |
| $\frac{3}{8}$ | M-1 Exterior glue | 16 | — |
| $\frac{1}{2}$ | M-2 Exterior glue | 16 | 16 |

For SI: 1 inch = 25.4 mm.

- a. Wall sheathing not exposed to the weather. If the panels are applied horizontally, the end joints of the panel shall be offset so that four panel corners will not meet. All panel edges must be supported. Leave a $\frac{1}{16}$ -inch gap between panels and nail not less than $\frac{3}{8}$ inch from panel edges.

RELAX... IT'S
ONLY A BRUSH
WITH DEATH



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11-18

WALL CONSTRUCTION

R601.2 Requirements. Wall construction shall be capable of accommodating all loads imposed according to Section R301 and of transmitting the resulting loads to the supporting structural elements.

R301.1.1 Alternative provisions

As an alternative to the requirements in Section R301.1 the following standards are permitted subject to the limitations of this code and the limitations therein. Where engineered design is used in conjunction with these standards, the design shall comply with the International Building Code.

1. American Forest and Paper Association (AF&PA) Wood Frame Construction Manual (WFCM).

2. American Iron and Steel Institute (AISI) Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-Family Dwellings (AISI S230).

3. ICC-400 Standard on the Design and Construction of Log Structures.

WALL CONSTRUCTION

R602.3 Design and construction.

Exterior walls of wood-frame construction shall be designed and constructed in accordance with the provisions of this chapter and **Figures R602.3(1) and R602.3.(2)** or in accordance with AWC NDS. Components of exterior walls shall be fastened in accordance with Tables R602.3(1) through R602.3(4).

American Wood Council

ANSI AWC NDS—2015 National Design Specification (NDS) for Wood Construction— with 2005 Supplement
. R404.2.2, R502.2, Table R503.1, R602.3, R608.9.2, Table R703.15.1, Table R703.15.2, R802.2

WALL CONSTRUCTION

R602.3 Design and construction.

Structural wall sheathing shall be fastened directly to structural framing members. Exterior wall coverings shall be capable of resisting the wind pressures listed in Table R301.2(2) adjusted for height and exposure using Table R301.2(3). Wood structural panel sheathing used for exterior walls shall conform to the requirements of Table R602.3(3).

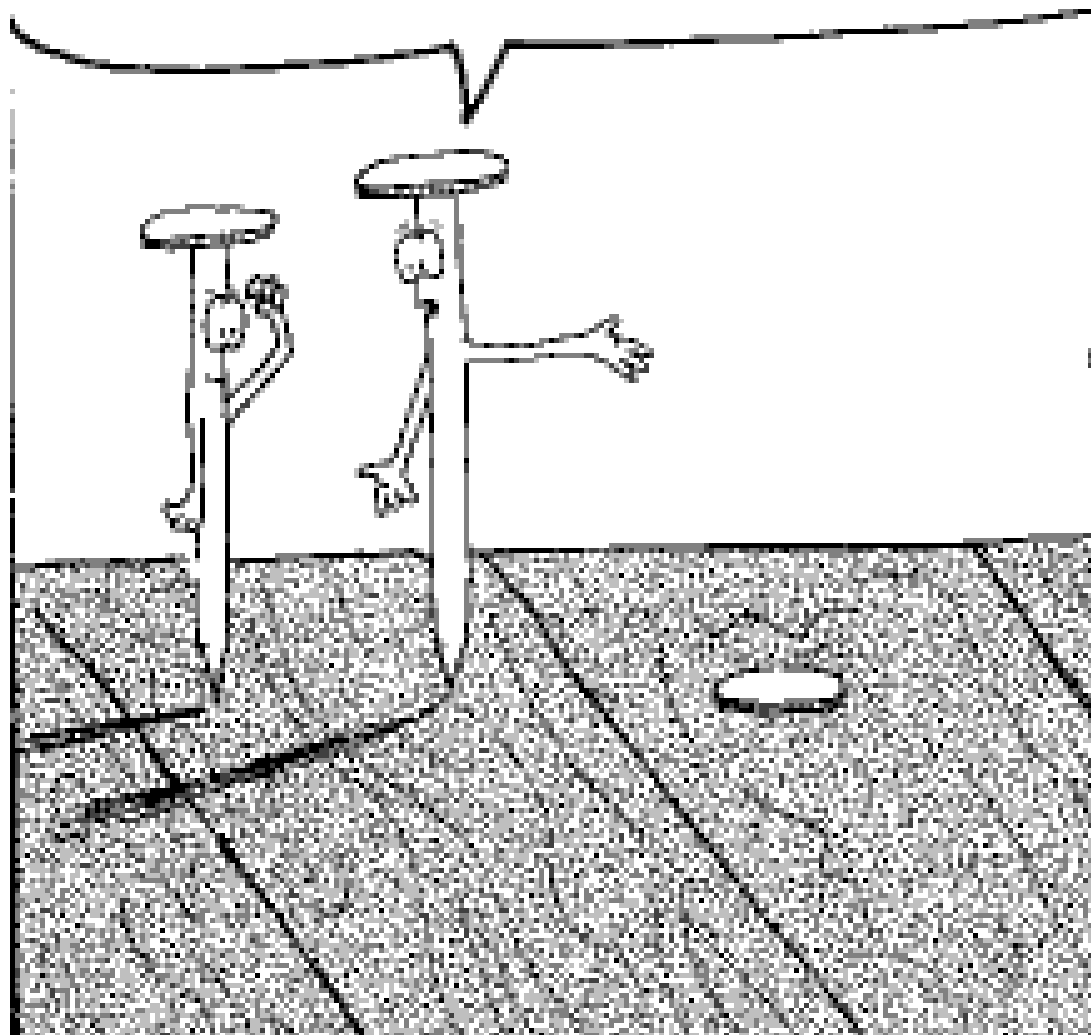
WALL CONSTRUCTION

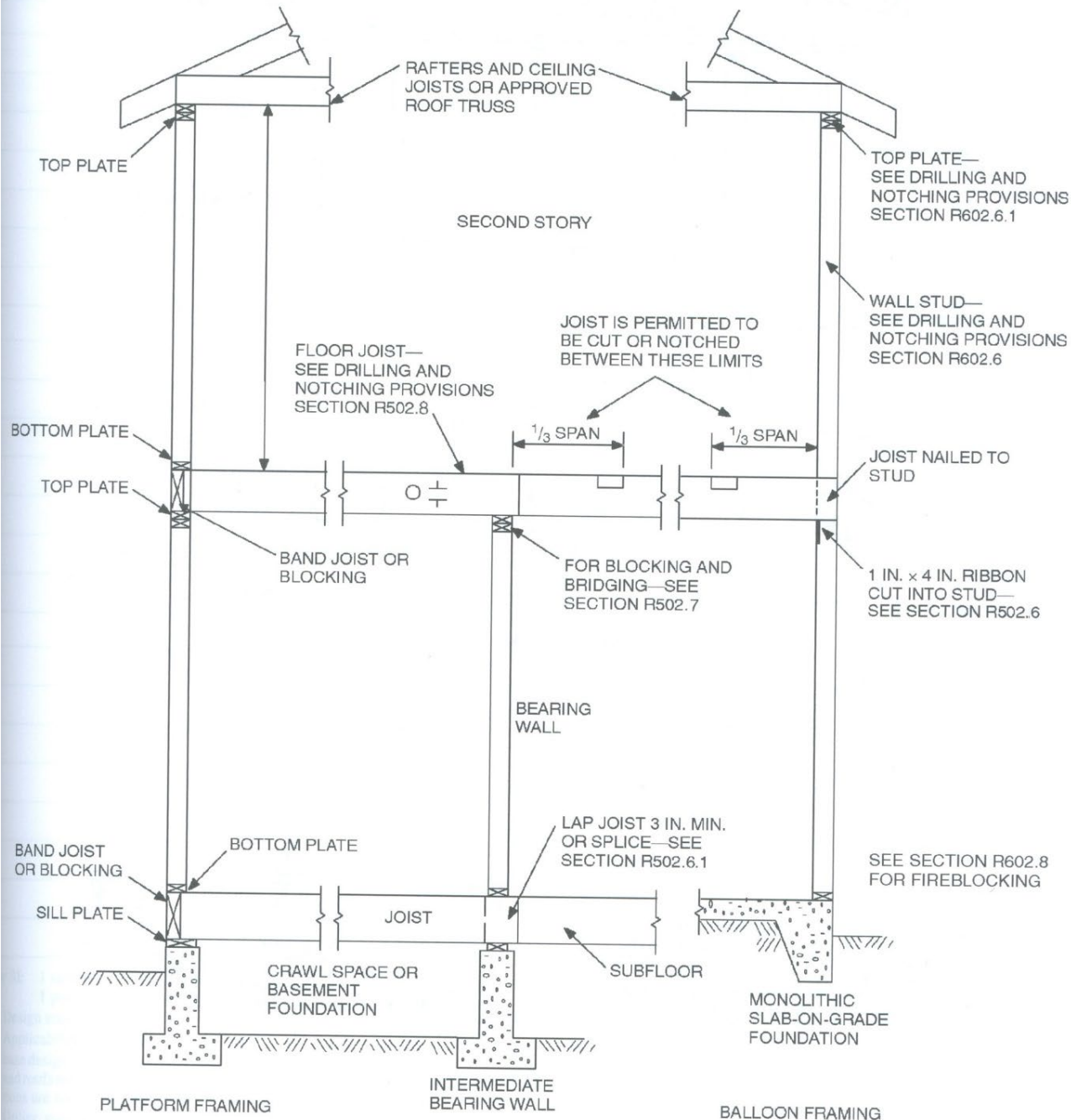
R602.3 Design and construction.

Studs shall be continuous from support at the sole plate to a support at the top plate to resist loads perpendicular to the wall. The support shall be a foundation or floor, ceiling or roof diaphragm or shall be designed in accordance with accepted engineering practice.

Exception: Jack studs, trimmer studs and cripple studs at openings in walls that comply with Tables R502.5(1) and R502.5(2).

... AND THEN I HEARD A
LOUD BANG AND WHEN I
TURNED BACK HE WAS GONE!





TOP PLATE

SECOND STORY

FLOOR JOIST—
SEE DRILLING AND
NOTCHING PROVISIONS
SECTION R502.8

JOIST IS PERMITTED TO
BE CUT OR NOTCHED
BETWEEN THESE LIMITS

TOP PLATE—
SEE DRILLING AND
NOTCHING PROVISIONS
SECTION R602.6.1

WALL STUD—
SEE DRILLING AND
NOTCHING PROVISIONS
SECTION R602.6

BOTTOM PLATE

$\frac{1}{3}$ SPAN

$\frac{1}{3}$ SPAN

JOIST NAILED TO
STUD

TOP PLATE

BAND JOIST OR
BLOCKING

FOR BLOCKING AND
BRIDGING—SEE
SECTION R502.7

1 IN. x 4 IN. RIBBON
CUT INTO STUD—
SEE SECTION R502.6

BAND JOIST OR
BLOCKING

BOTTOM PLATE

LAP JOIST 3 IN. MIN.
OR SPLICE—SEE
SECTION R502.6.1

SEE SECTION R602.8
FOR FIREBLOCKING

SILL PLATE

JOIST

SUBFLOOR

CRAWL SPACE OR
BASEMENT
FOUNDATION

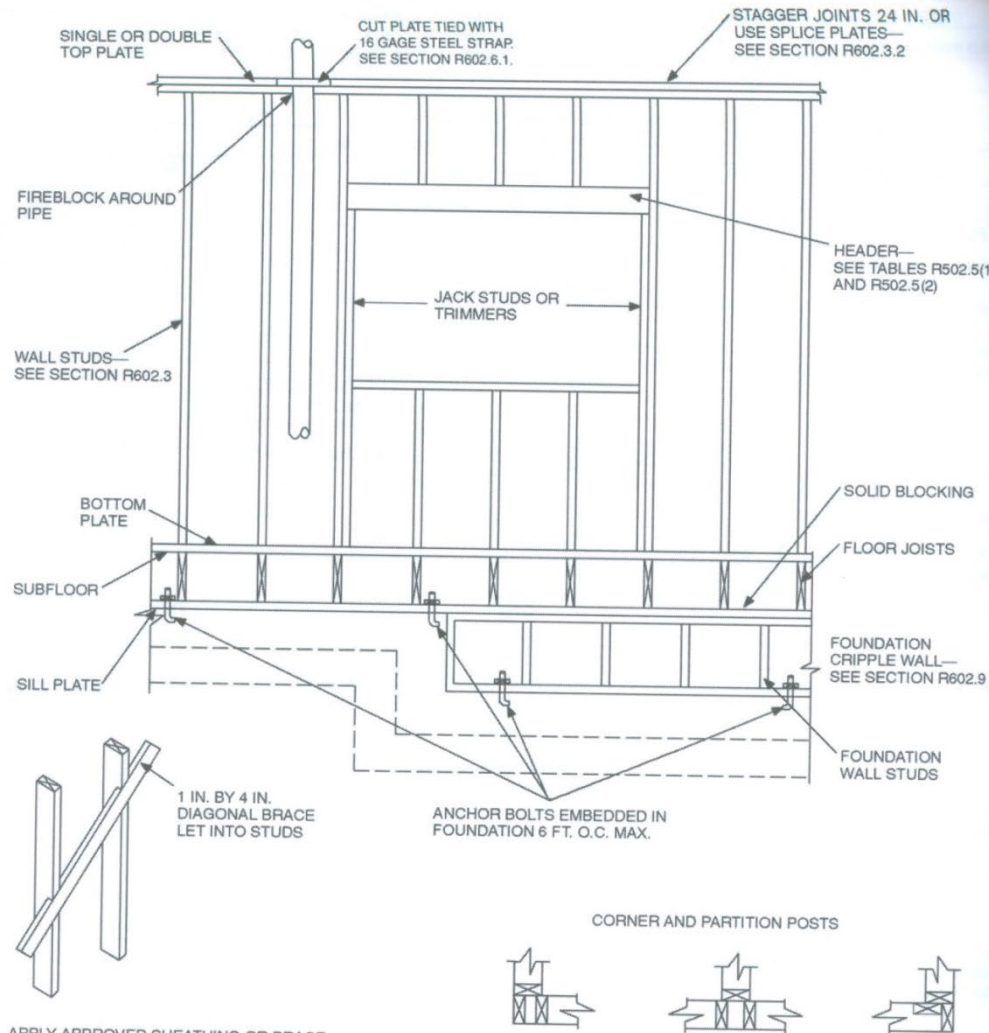
MONOLITHIC
SLAB-ON-GRADE
FOUNDATION

PLATFORM FRAMING

INTERMEDIATE
BEARING WALL

BALLOON FRAMING

Fig R602.3(1)



APPLY APPROVED SHEATHING OR BRACE EXTERIOR WALLS WITH 1 IN. BY 4 IN. BRACES LET INTO STUDS AND PLATES AND EXTENDING FROM BOTTOM PLATE TO TOP PLATE, OR OTHER APPROVED METAL STRAP DEVICES INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S

NOTE: A THIRD STUD AND/OR PARTITION INTERSECTION BACKING STUDS SHALL BE PERMITTED TO BE OMITTED THROUGH THE USE OF WOOD BACKUP CLEATS, METAL DRYWALL CLIPS OR OTHER APPROVED DEVICES THAT WILL SERVE AS ADEQUATE BACKING FOR THE FACING

WALL CONSTRUCTION



WALL CONSTRUCTION



WALL CONSTRUCTION

So does barn comply a post and beam pole with R602.3?

So how do you approve the plan and framing?

R301.1.3 Engineered design.

When a building of otherwise conventional construction contains structural elements exceeding the limits of Section R301 or otherwise not conforming to this code, these elements shall be designed in accordance with accepted engineering practice.

The extent of such design need only demonstrate compliance of nonconventional elements with other applicable provisions and shall be compatible with the performance of the conventional framed system.

R301.1.3 Engineered design.

Engineered design in accordance with the International Building Code is permitted for all buildings and structures, and parts thereof, included in the scope of this code.

WALL CONSTRUCTION

R301.1 Application.

Buildings and structures, and all parts thereof, shall be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code.

R301.1 Application.

The construction of buildings and structures in accordance with the provisions of this code shall result in a system that provides a complete load path that meets all requirements for the transfer of all loads from their point of origin through the load-resisting elements to the foundation. Buildings and structures constructed as prescribed by this code are deemed to comply with the requirements of this section.

Building Code

(MBC 602.3) Post-frame can be Type III construction with the use of fire-retardant-wood-framing (FRWF) within exterior wall assemblies of a 2-hour rating or less.

602.4

Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For glued laminated members and structural composite lumber (SCL) members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4. Cross laminated timber (CLT) dimensions used in this section are actual dimensions.

602.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section and Section 2304.11. Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted.

602.4

Post-frame is NOT Type IV construction (Heavy Timber, HT)

602.5

Most post-frame buildings are Type V

**TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)**

| BUILDING ELEMENT | TYPE I | | TYPE II | | TYPE III | | TYPE IV | TYPE V | |
|---|-------------------------------|-------------------|-------------------|----------------|-------------------|---|---------------------|-------------------|---|
| | A | B | A ^d | B | A ^d | B | HT | A ^d | B |
| Primary structural frame ^g (see Section 202) | 3 ^a | 2 ^a | 1 | 0 | 1 | 0 | HT | 1 | 0 |
| Bearing walls | | | | | | | | | |
| Exterior ^{f, g} | 3 | 2 | 1 | 0 | 2 | 2 | 2 | 1 | 0 |
| Interior | 3 ^a | 2 ^a | 1 | 0 | 1 | 0 | 1/HT | 1 | 0 |
| Nonbearing walls and partitions Exterior | See Table 602 | | | | | | | | |
| Nonbearing walls and partitions Interior ^e | 0 | 0 | 0 | 0 | 0 | 0 | See Section 602.4.6 | 0 | 0 |
| Floor construction and secondary members (see Section 202) | 2 | 2 | 1 | 0 | 1 | 0 | HT | 1 | 0 |
| Roof construction and secondary members (see Section 202) | 1 ^{1/2} ^b | 1 ^{b, c} | 1 ^{b, c} | 0 ^c | 1 ^{b, c} | 0 | HT | 1 ^{b, c} | 0 |

For SI: 1 foot = 304.8 mm.

602.4

Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For glued-laminated members the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4.

**TABLE 602.4
WOOD MEMBER SIZE**

| MINIMUM NOMINAL SOLID SAWN SIZE | | MINIMUM GLUED-LAMINATED NET SIZE | |
|---------------------------------|-------------|----------------------------------|--------------------------------|
| Width, inch | Depth, inch | Width, inch | Depth, inch |
| 8 | 8 | 6 ³ / ₄ | 8 ¹ / ₄ |
| 6 | 10 | 5 | 10 ¹ / ₂ |
| 6 | 8 | 5 | 8 ¹ / ₄ |
| 6 | 6 | 5 | 6 |
| 4 | 6 | 3 | 6 ⁷ / ₈ |

For SI: 1 inch = 25.4 mm.

602.4.1 Columns.

Wood columns shall be sawn or glued laminated and **shall not be less than 8 inches (203 mm)**, nominal, in any dimension where supporting floor loads and not less than 6 inches (152 mm) nominal in width and not less than 8 inches (203 mm) nominal in depth where supporting roof and ceiling loads only. Columns shall be continuous or superimposed and connected in an approved manner.

CHAPTER 18

SOILS AND FOUNDATIONS

1801.1 Scope. The provisions of this chapter shall apply to building and foundation systems.



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CHAPTER 18

SOILS AND FOUNDATIONS

1801.2 Design basis. Allowable bearing pressures, allowable stresses and design formulas provided in this chapter shall be used with the allowable stress design load combinations specified in Section 1605.3. The quality and design of materials used structurally in excavations and foundations shall comply with the requirements specified in Chapters 16, 19, 21, 22 and 23 of this code. Excavations and fills shall also comply with Chapter 33.

SECTION 1802 DEFINITIONS

DEEP FOUNDATION. A deep foundation is a foundation element that does not satisfy the definition of a shallow foundation.

SECTION 1802 DEFINITIONS

SHALLOW FOUNDATION. A shallow foundation is an individual or strip footing, a mat foundation, a slab-on-grade foundation or a similar foundation element.

SHALLOW FOUNDATION?



1803.5.5 Deep foundations.

Where deep foundations will be used, a geotechnical investigation shall be conducted and shall include all of the following, unless sufficient data **upon** which to base the design and installation is otherwise available:

1803.5.5 Deep foundations.

1. Recommended deep foundation types and installed capacities.
2. Recommended center-to-center spacing of deep foundation elements

1803.5.5 Deep foundations.

3. Driving criteria.

4. Installation procedures.

1803.5.5 Deep foundations.

5. Field inspection and reporting procedures (to include procedures for verification of the installed bearing capacity where required).

6. Load test requirements.

1803.5.5 Deep foundations.

7. Suitability of deep foundation materials for the intended environment.
8. Designation of bearing stratum or strata.
9. Reductions for group action, where necessary.

So Which Code Applies?



SO WHAT DO YOU THINK?

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