

Guide for Single Family Residential Construction



CITY OF FARGO BUILDING INSPECTION DEPARTMENT

The State of North Dakota requires that you call [1-800-795-0555](tel:1-800-795-0555) at least two business days before you dig.

This handout does not address any covenants or easements assigned to the property, nor does it relieve you of code compliance with items which may not have been included from the 2003 International Residential Code (IRC).

BUILDING PERMIT

IS A BUILDING PERMIT REQUIRED?

YES! Before any work is started you must acquire a building permit.

WHY SHOULD I GET A PERMIT?

To ensure your garage/home is constructed properly to safeguard your property; to protect yourself; to establish a record of construction or remodeling history on your property; and, to provide some protection from claims by subsequent property owners.

WHAT IS NEEDED TO GET A PERMIT?

The address and the zoning of the property; the intended use of the property (if uses other than residential are anticipated); the estimated cost of construction of the project; and, a site plan showing the size and location of all existing buildings on your property along with the proposed project. Also, basic construction drawings are often helpful. Basic construction drawings must include the truss design(s) that will be used in your construction.

HOW LONG DOES IT TAKE TO GET A PERMIT?

Generally one (1) hour, depending upon the information provided and the complexity of the project.

ARE INSPECTIONS REQUIRED?

YES! It is the responsibility of the permit holder to arrange for inspections. This would include foundation, framing, electrical, heating, and a final inspection. Inspections are part of the permit process. Building inspections consist of examining and evaluating construction to determine if the work is compatible with the accepted standard of construction. There is no additional charge for inspections.

DEFINITIONS

Foundations:	The foundation must be constructed of masonry, concrete, or treated wood and shall extend below the frost line.
Garage Floor:	Where motor vehicles are stored, floor surfaces shall be constructed of noncombustible materials.
Lot Coverage:	The percentage of the area of the lot that is allowed to be covered by the main buildings and all accessory buildings within a specified zoning district.
Property Line:	A recorded boundary of a plot. It is the owner's responsibility to know where and how to locate the property lines. The City of Fargo assumes that the owner knows this information. Errors due to lack of property line knowledge will cause delays and additional expense.
Required:	Needed; essential; necessary
Yard:	An open space, other than a court, on the same lot with a building.
Yard, Front:	A yard extending across the full width of a lot and having a depth equal to the shortest distance between the front line of the lot and the nearest portion of the main building, including an enclosed or covered porch. Where a building line or other line for designation of future street width has been established, the front yard depth shall be measured from such line instead of from the front line of the lot.
Yard, Rear:	A yard extending across the full width of a lot and having a depth equal to the shortest distance between the rear line of the lot and the main building.
Yard, Side:	A yard between the side line of the lot and the main building extending from the front yard to the rear yard and having a width equal to the shortest distance between said side line and the main building.

Article 20-05

Dimensional Standards

§20-0501 Residential District Standards

The dimensional standards of Table 20-05010 apply to all development in MR-3 and more restrictive zoning districts.

Table 20-0501

Dimensional Standard	Zoning District									
	AG	SR-0	SR-1	SR-2	SR-3	SR-4	SR-5	MR-1	MR-2	MR-3
Maximum Density (UPA)	0.1	1.0	2.9	5.4	8.7	12.1	14.5	16.0	20.0	24.0[1]
Minimum Lot Size										
Area (Sq. Ft.)	10 Ac	1 Ac [2]	15,000	8,000	5,000	3,600	3,000	5,000	5,000	5,000
Width (Ft.)	200	120	80	60	50 [3]	50 [3]	25	50 [3]	50 [3]	50 [3]
Minimum Setbacks (Ft.)										
Front	50 [4]	50	35	30	20	15 [5]	15 [5]	25	25	25
Interior Side [6]	25	25	15/15	10/10	10/10	4	4	15/25	15/25	10
Street Side	25 [7]	25	17.5	15	12.5	10	10	12.5	12.5	12.5
Rear	50	50	25	25	15	15	15	20	20	20
Max. Building Coverage (Pct. Of Lot)	NA	25	25	30	35	45	50	35	35	35
Minimum Open Space (Pct. Of Lot)	NA	NA	NA	NA	NA	NA	NA	35	35	35
Maximum Height (Ft.)	35	35	35	35	35	35	35	35	45	60

Source: 2985 (1999), 3062 (1999), 4039 (2000), 4338 (2003).

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- [1] Higher densities may be allowed with the Bonus Density provisions of Sec. 20-0505.
- [2] SR-0 minimum district size is 20 acres. See section 20-0203-A.
- [3] Minimum lot width subject to limitation of access as provided in Section 20-0702.
- [4] Minimum 100 feet from right-of-way on Arterial or section line road.
- [5] Minimum 20-foot setback shall be provided between front-entry garages and nearest edge of sidewalk crossing plate.
- [6] ## = Percent of Lot Width/Feet (whichever is less)
- [7] Minimum 75 feet from right-of-way on Arterial or section line road.

SECTION R303 - LIGHT, VENTILATION AND HEATING

R303.1 Habitable rooms. All habitable rooms shall be provided with aggregate glazing area of not less than 8 percent of the floor area of such rooms. Natural ventilation shall be through windows, doors, louvers or other approved openings to the outdoor air. Such openings shall be provided with ready access or shall otherwise be readily controllable by the building occupants. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

Exceptions: 1. The glazed areas need not be openable where the opening is not required by Section R310 and an approved

Section R303.4.1 as follows -Light activation - “The control for activation of the required interior stairway lighting shall be accessible at the top and bottom of each stairway having more than five risers without traversing any step of the stair”.

SECTION R304 - MINIMUM ROOM AREAS

R304.1 Minimum area every dwelling unit shall have at least one habitable room that shall have not less than 120 square feet of gross floor area.

R304.2 Other rooms. Other habitable rooms shall have a floor area of not less than 70 square feet.

Exception: Every kitchen shall have not less than 50 square feet of gross floor area.

R304.3 Minimum dimensions. Habitable rooms shall not be less than 7 feet in any horizontal dimension.

R304.4 Height effect on room area. Portions of a room with a sloping ceiling measuring less than 5 feet a furred ceiling measuring less than 7 feet from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required habitable area for that room.

SECTION R305 - CEILING HEIGHT

R305.1 Minimum height. Habitable rooms, hallways, corridors, bathrooms, toilet rooms, laundry rooms and basements shall have a ceiling height of not less than 7 feet. The required height shall be measured from the finish floor to the lowest projection from the ceiling.

- Exceptions:**
1. Beams and girders spaced not less than 4 feet on center may project not more than 6 inches below the required ceiling height.
 2. Ceilings in basements without habitable spaces may project to within 6 feet, 8 inches of the finish floor; and beams, girders, ducts or other obstructions may project to within 6 feet, 4 inches of the finished floor.
 3. Not more than 50 percent of the required floor area of a room or space is permitted to have a sloped ceiling less than 7 feet in height with no portion of the required floor area less than 5 feet in height.

SECTION R309 - GARAGES AND CARPORTS

R309.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches thick, or 20-minute fire-rated doors.

R309.1.1 Duct penetration. Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage sheet steel or other approved material and shall have no openings into the garage.

R309.2 Separation required. The garage shall be separated from the residence and its attic area by not less than 1/2 inch gypsum board applied to the garage side. Where the separation is a floor-ceiling assembly, the structure supporting this separation shall also be protected by not less than 1/2 inch gypsum board or equivalent.

R309.3 Floor surface. Garage floor surfaces shall be of approved noncombustible material. The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

R309.4 Carports. Carports shall be open on at least two sides. Carport floor surfaces shall be of approved noncombustible material. A carport not open on at least two sides shall be considered a garage and shall comply with the provisions of this section for a garage.

Exception: Asphalt surfaces shall be permitted at ground level in carports. The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry.

SECTION R310 - EMERGENCY ESCAPE AND RESCUE OPENINGS

R310.1 Emergency escape and rescue required. Basements with habitable space and every sleeping room shall have at least one openable emergency escape and rescue window or exterior door for emergency escape and rescue. Where openings are provided as a means of escape and rescue they shall have a sill height of not more than 44 inches above the floor (48 inches if below grade in a single family dwelling). Where a door opening having a threshold below the adjacent ground elevation serves as an emergency escape and rescue opening and is provided with a bulkhead enclosure, the bulkhead enclosure shall comply with Section R310.3. The net, clear opening dimensions required by this section shall be obtained by the normal operation of the window or door opening from the inside. Escape and rescue window openings with a finished sill height below the adjacent ground elevation shall be provided with a window well in accordance with Section R310.2.

R310.1.1 Minimum opening area. All emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet.

Exception: Grade floor openings shall have a minimum net clear opening of 5 square feet.

R310.1.2 Minimum opening height. The minimum net clear opening height shall be 24 inches.

R310.1.3 Minimum opening width. The minimum net clear opening width shall be 20 inches.

R310.1.4 Operational constraints. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools.

R310.2 - Window Well

R310.2 Window wells required for emergency escape and rescue shall have horizontal dimensions that allow the door or window of the emergency escape and rescue opening to be fully opened. The horizontal dimensions of the window well shall provide a minimum net clear area of 9 square feet with a minimum horizontal projection and width of 36 inches.

Exception: The ladder or steps required by Section R310.2.1 shall be permitted to encroach a maximum of 6 inches into the required dimensions of the window well.

Local Amendment Section R310 *“Exception: Below grade emergency escape and rescue window may have a maximum sill height of 48 inches.”*

R310.2.1 Ladder and steps. Window wells with a vertical depth greater than 44 inches below the adjacent ground level shall be equipped with a permanently affixed ladder or steps usable with the window in the fully open position. Ladders or steps required by this section shall not be required to comply with Sections R314 and R315. Ladders or rungs shall have an inside width of at least 12 inches shall project at least 3 inches from the wall and shall be spaced not more than 18 inches on center vertically for the full height of the window well.

Local Amendment Section R310.2.1 *Install a minimum 30” X 16” permanently attached platform, in the window well, that will reduce the vertical depth of the window well to no more than 42” below the top of the window well and that will not impede the operation of the window.”*

Section R314.2 The maximum riser height shall be 8 inches and the minimum tread depth shall be 9 inches.”

Local Amendment Section R312.1.2 as follows: “At the exterior side of sliding doors and in-swinging doors opening onto a patio and in-swinging doors opening into an attached garage”.

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 R314.9.

R310.4 Bars, grills, covers and screens. Bars, grills, covers, screens or similar devices are permitted to be placed over emergency escape and rescue openings, bulkhead enclosures, or window wells that serve such openings, provided the minimum net clear opening size complies with Sections R310.1.1 to R310.1.3, and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening.

SECTION R311 - EXITS

R311.1 Exit door required. Not less than one exit door conforming to this chapter shall be provided from each dwelling unit. The required exit door shall provide for direct access from the habitable portions of the dwelling to the exterior without requiring travel through a garage.

R311.2 Type of lock or latch. All egress doors shall be readily open able from the side from which egress is to be made without the use of a key or special knowledge or effort.

R311.3 Type and size. The required exit door shall be a side-hinged door not less than 3 feet in width and 6 feet, 8 inches (2032 mm) in height. Other exterior hinged or sliding doors shall not be required to comply with these minimums
Dimensions.

R311.4 Hallways. The minimum width of a hallway shall be not less than 3 feet.

R311.5 Exit facilities. Exterior exit balconies, stairs and similar exit facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces. Such attachment shall not be accomplished by use of toenails or nails subject to withdrawal.

SECTION R315 - HANDRAILS

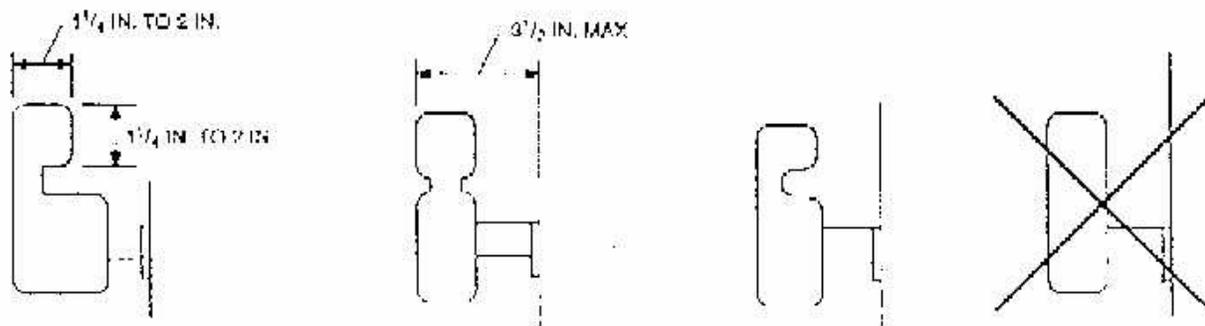
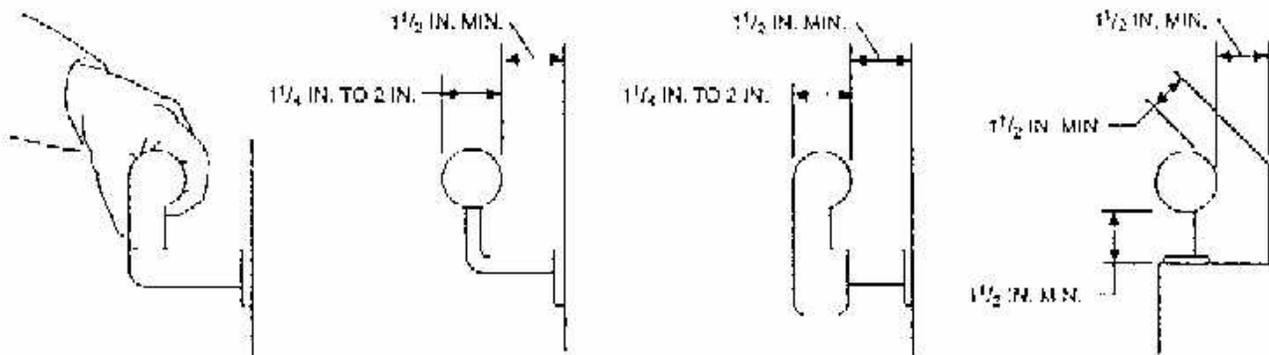
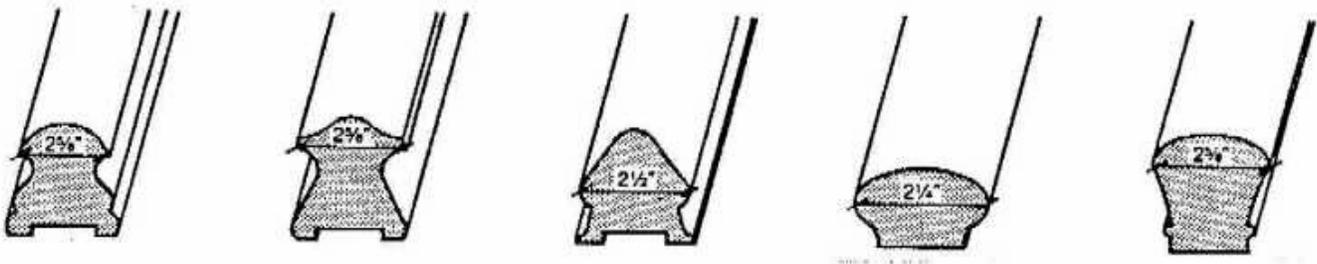
R315.1 Handrails Handrails having minimum and maximum heights of 34 inches and 38 inches, respectively, measured vertically from the nosing of the treads shall be provided on at least one side of stairways. All required handrails shall be continuous the full length of the stairs with four or more risers from a point directly above the top riser of a flight to a point directly above the lowest riser of the flight.

Ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1.5 inches between the wall and the handrail.

Exceptions:

1. Handrails shall be permitted to be interrupted by a newel post at a turn.
2. The use of a volute, turnout or starting easing shall be allowed over the lowest tread.

R315.2 Handrail grip size. The handgrip portion of handrails shall have a circular cross section of 1 1/4 inches minimum to 2 5/8 inches maximum. Other handrail shapes that provide an equivalent grasping surface are permissible. Edges shall have a minimum radius of 1/8 inch.



NOTE: Other shapes may be acceptable if they provide an equivalent grasping surface.

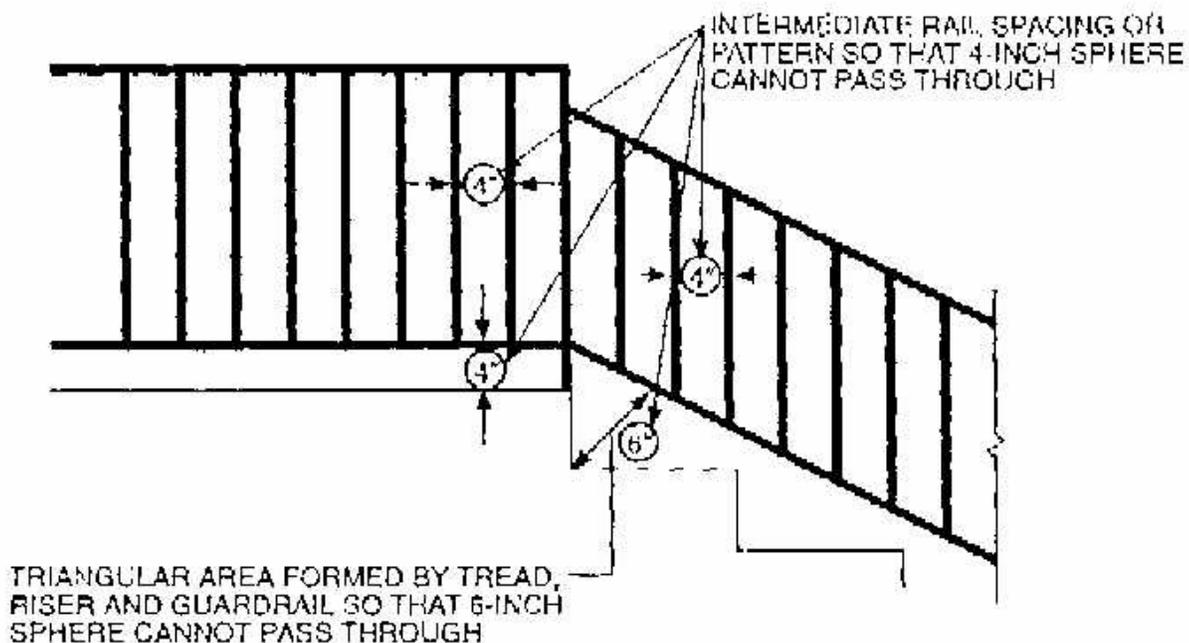
NOT ACCEPTABLE

SECTION R316 - GUARDS

R316.1 Guards required. Porches, balconies or raised floor surfaces located more than 30 inches above the floor or grade below shall have guards not less than 36 inches in height. Open sides of stairs with a total rise of more than 30 inches above the floor or grade below shall have guards not less than 34 inches in height measured vertically from the nosing of the treads.

R316.2 Guard opening limitations. Required guards on open sides of stairways, raised floor areas, balconies and porches shall have intermediate rails or ornamental closures that do not allow passage of a sphere 4 inches in diameter. Required guards shall not be constructed with horizontal rails or other ornamental pattern that results in a ladder effect.

Exception: The triangular openings formed by the riser, tread and bottom rail of a guard at the open side of a stair way are permitted to be of such a size that a sphere 6 inches cannot pass through.



SECTION R317 - SMOKE ALARMS

R317.1 Single- and multiple-station smoke alarms. Single- and multiple-station smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside of each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements and cellars but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

When more than one smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise

levels with all intervening doors closed. All smoke alarms shall be listed and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.

Local Amendment Section R317.1 - Single and multiple-station smoke alarms.

Add to item #3. "In dwelling units where the ceiling height of a room open to the hallway serving the bedrooms exceeds that of the hallway by 24 inches (610 mm) or more, smoke detectors shall be installed in the hallway and in the adjacent room".

R317.1.1 Alterations, repairs and additions. When interior alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be provided with smoke alarms located as required for new dwellings; the smoke alarms shall be interconnected and hard wired.

Exceptions: 1. Smoke alarms in existing areas shall not be required to be interconnected and hard wired where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space, or basement available which could provide access for hard wiring and interconnection without the removal of interior finishes.

2. Repairs to the exterior surfaces of dwellings are exempt from the requirements of this section.

R317.2 Power source. In new construction, the required smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for over current protection. Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power or in buildings that undergo alterations, repairs or additions regulated by Section R317.1.1.

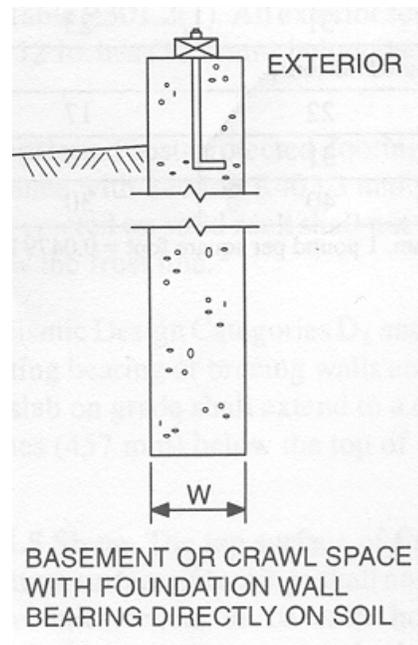
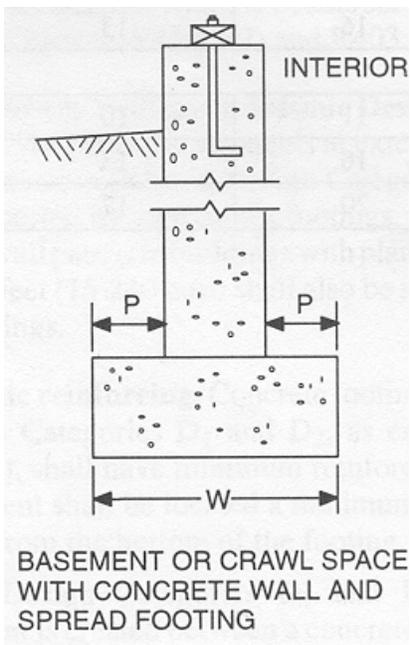
**TABLE R 404.1 (2)
FOUNDATION WALL REINFORCING**

Active Pressure = 45 pcf

Minimum Reinforcement for Concrete Foundation Walls		
Wall Height (h) feet	Wall Thickness (t) Inches	Vertical Reinforcing
8	8	#4 @ 24" o.c.
		#5 @ 40" o.c.
	10	#4 @ 30" o.c.
		#5 @ 50" o.c.
9	8	#4 @ 18" o.c.
		#5 @ 28" o.c.
	10	#4 @ 24" o.c.
		#5 @ 36" o.c.
10	10	#4 @ 16" o.c.
		#5 @ 26" o.c.

Notes:

1. Chart is based on an active soil pressure of 45 pounds per cubic foot (pcf).
2. Reinforcing steel shall be ASTM A61 5 Fy = 60,000 pounds per square inch (psi).
3. The vertical reinforcing bars are to be located on the inside face.
4. Minimum concrete strength $F_c' = 3000$ pounds per square inch (psi).
5. Backfill shall not be placed until first floor framing and sheathing is installed and fastened or adequately braced and the concrete floor slab is in place or the wall is adequately braced.



SECTION R602 - WOOD WALL FRAMING

R602.1 Identification. Load-bearing dimension lumber for studs, plates and headers shall be identified by a grade mark of a lumber grading or inspection agency that has been approved by an accreditation body that complies with DOCPS 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.

R602.1.1 End-jointed lumber. Approved end-jointed lumber identified by a grade mark conforming to Section R602.1 may be used interchangeably with solid-sawn members of the same species and grade.

R602.2 Grade. Studs shall be a minimum No. 3, standard or stud grade lumber.

Exception: Bearing studs not supporting floors and non-bearing studs may be utility grade lumber, provided the studs are spaced in accordance with Table R602.3(5).

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 AF&PA's NDS. Components of exterior walls shall be fastened in accordance with Tables R602.3(1) through R602.3(4).

R602.3.1 Stud spacing. In bearing walls, studs that are not more than 10 feet (3048 mm) in length shall be spaced not more than is specified in Table R602.3(5). In bearing walls, studs that are more than 10 feet in height shall be spaced not more than specified in Table R602.3.1.

R602.3.2 Top plate. Wood stud walls shall be capped with a double top plate installed to provide overlapping at corners plates shall be offset at least 24 inches.

Exception: A single top plate may be installed in stud walls, provided the plate is adequately tied at joints, corners and intersecting walls by a minimum 3-inch-by-6-inch by a 0.036-inch-thick by galvanized steel plate that is nailed to each wall or segment of wall by six 8d nails on each side, provided the rafters or joists are centered over the studs with a tolerance of no more than 1 inch. The top plate may be omitted over lintels that are adequately tied to adjacent wall sections with steel plates or equivalent as previously described.

R602.3.3 Bearing studs. Where joists, trusses or rafters are spaced more than 16 inches on center and the bearing studs below are spaced 24 inches on center, such members shall bear within 5 inches of the studs beneath.

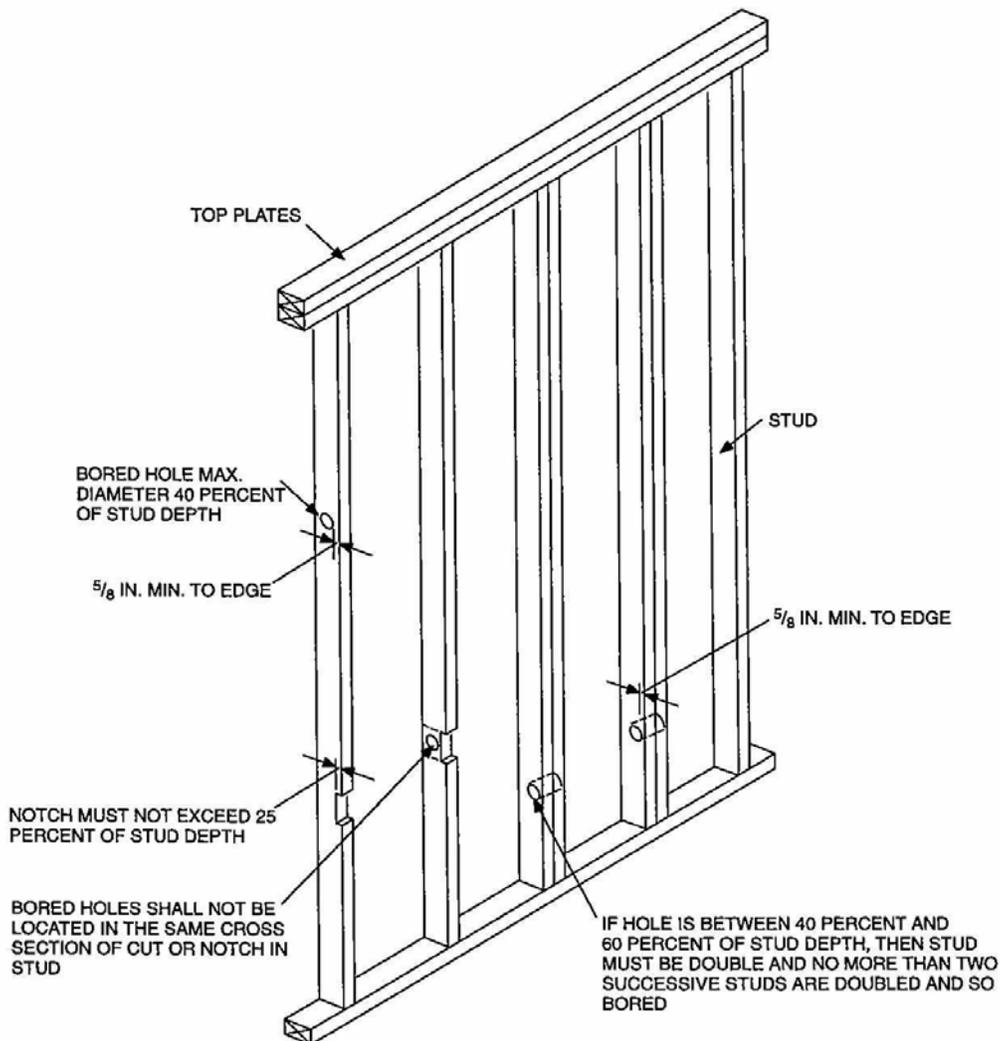
Exceptions:

1. The top plates are two 2-inch by 6-inch by or two 3-inch by 4-inch members.
2. A third top plate is installed.
3. Solid blocking equal in size to the studs is installed to reinforce the double top plate.

R602.3.4 Bottom (sole) plate. Studs shall have full bearing on a nominal 2 by or larger plate or sill having a width at least equal to the width of the studs.

R602.4 Interior load-bearing walls. Interior load-bearing walls shall be constructed, framed and fire blocked as specified for exterior walls.

R602.5 Interior nonbearing walls. Interior nonbearing walls shall be permitted to be constructed with 2-inch-by-3-inch studs spaced 24 inches on center or, when not part of a braced wall line, 2-inch-by-4-inch flat studs spaced at 16 inches on center. Interior nonbearing walls shall be capped with at least a single top plate. Interior nonbearing walls shall be fire blocked in accordance with Section R602.8.



For SI: 1 inch = 25.4 mm.

Note: Condition for exterior and bearing walls.

FIGURE R602.6(1)
NOTCHING AND BORED HOLE LIMITATIONS FOR EXTERIOR WALLS AND BEARING WALLS

R602.6 Drilling and notching—studs. Any stud in an exterior wall or bearing partition may be cut or notched to a depth not exceeding 25 percent of its width. Studs in nonbearing partitions may be notched to a depth not to exceed 40 percent of a single stud width. Any stud may be bored or drilled, provided that the diameter of the resulting hole is no greater than 40 percent of the stud width, the edge of the hole is no closer than $\frac{5}{8}$ inch to the edge of the stud, and the hole is not located in the same section as a cut or notch. See Figures R602.6 (1) and R602.6 (2). [See Figures R602.6 (1) and R602.6 (2).]

Exceptions: 1. A stud may be bored to a diameter not exceeding 60 percent of its width, provided that such studs located in exterior walls or bearing partitions are doubled and that not more than two successive studs are bored.

2. Approved stud shoes may be used when installed in accordance with the manufacturer's recommendation.

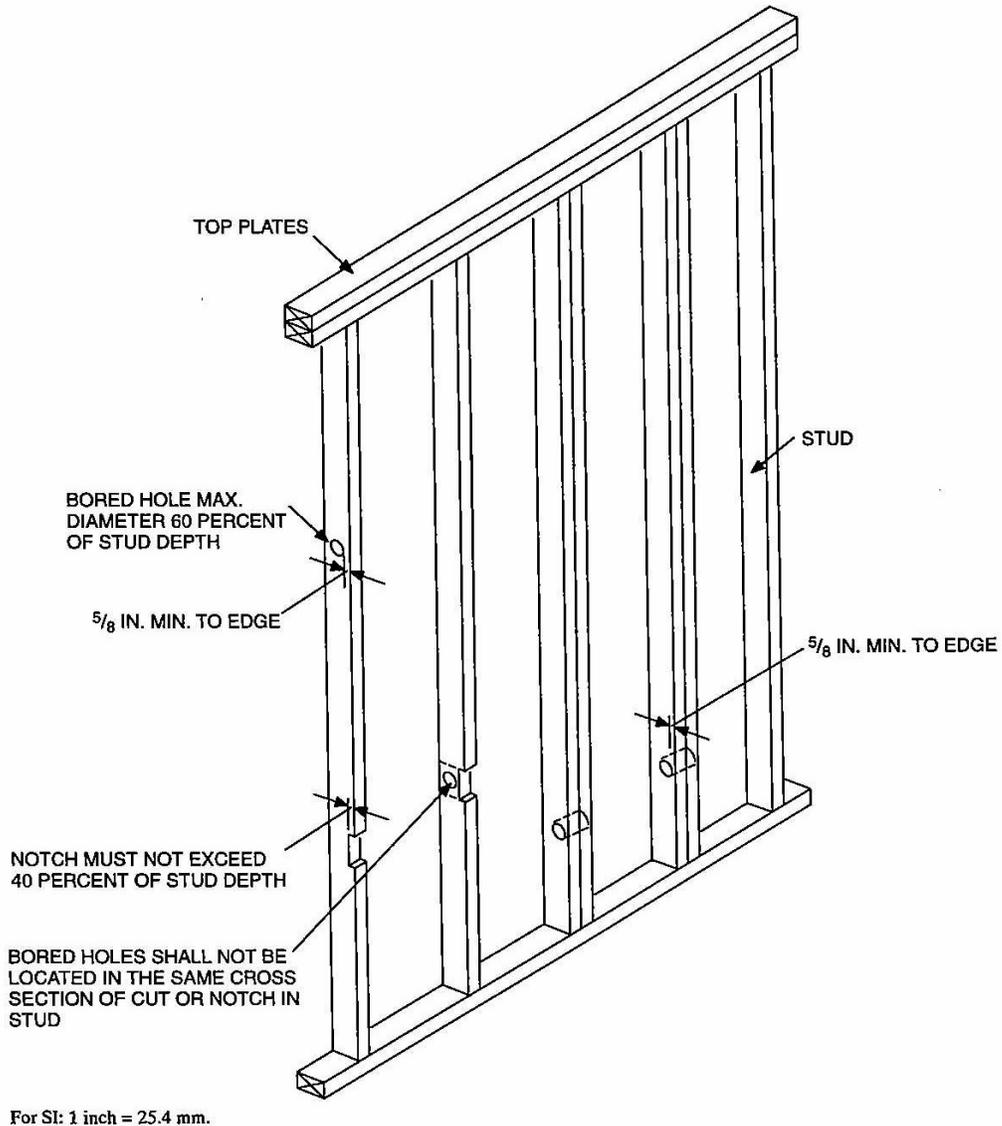


FIGURE R602.6(2)
NOTCHING AND BORED HOLE LIMITATIONS FOR INTERIOR NONBEARING WALLS

R602.7.2 Nonbearing walls. Load-bearing headers are not required in interior or exterior nonbearing walls. A single flat 2-inch-by-4-inch member may be used as a header in interior or exterior nonbearing walls for openings up to 8 feet in width if the vertical distance to the parallel nailing surface above is not more than 24 inches. For such nonbearing headers, no cripples or blocking are required above the header. And to retard the spread of fire and hot gases.