

# Homeowner's Lower Level Finish

The following is an informational document that has been created to simplify the requirements for a lower level finish.

**Permit Issuance.** Plan submittal and permit issuance will be required for all lower level finishes. This permit applies to single-family dwelling units where the homeowner both owns and resides at. The homeowner will be required to provide the following informational documents at the time of permit application:

- A floor plan shall be submitted which is legible and drawn to scale and dimensioned. Floor plans must show new and existing rooms, egress windows, stairs, mechanical rooms, and specialty items such as gas fireplaces or wet bars.
- Permit fees are based on the value of the work to be performed; the homeowner must provide a value at the time of permit issuance.
- The owner must specify whether he will employ subcontractors for the electrical, mechanical, and plumbing licensed by the City of Sioux Falls. Or if desired, he may secure homeowner permits to complete these items; however, he must do the work and is not allowed to subcontract to another unlicensed individual to do the work. Separate permit fees for these items are set by the City of Sioux Falls.

**Posting Permit.** The permit placard (colored card) shall be posted on the building near the main entrance on a door or window which is visible from the main road or entrance.

**Active Permits.** Your permit only pertains to the work described on the permit application. In order for the permit to remain active, a required inspection by a division of Building Services (building, plumbing, mechanical, or electrical) shall be performed within 180 days of issuance and within each consecutive 180-day time period. It is the permittee's responsibility to make all required corrections and call for reinspection within a 30-day time period. No permit shall be cancelled, abandoned, or have occupancy granted with outstanding violations.

**Requesting An Inspection.** It is the responsibility of the permit applicant to provide access to the work. Simply stated, "If the inspector cannot see the work, the work cannot be inspected." The City of Sioux Falls is not liable for expenses entailed in the removal or replacement of any material required to allow inspection. **Keep in mind there are separate inspectors for the electrical, plumbing, building, and mechanical divisions.** It is the responsibility of the applicant to ensure all of the applicable inspectors have approved the **rough-in** or framing of their specific division before work is covered by insulation, sheetrock, etc., and a **final inspection** occurs at the completion of the work by all divisions.

1. The permit holder must notify the building inspector when the work is ready for inspection. To request an inspection, call 367-8251 or 367-8670 and allow a day's notice prior to inspection. Inspections called in after business hours can be logged in

on the answering machine at 367-8251 or 367-8670. Inspection requests can be faxed at 367-6045. The following inspections are required:

- *Frame Inspection.* To be made after all framing, fire blocking, and bracing are in place and all pipes, chimneys, and vents are complete and the rough electrical, plumbing, and mechanical items are in place.
- *Final Inspection.* Final inspection shall be made after the permitted work is complete.

The building inspector will either approve that portion of the construction as completed or will notify the permit holder or agent of the permit holder that changes are necessary for compliance.

2. *Calling for Inspection.* When calling for inspections, be prepared to give the following information:

- Street Address
- Name of Contractor
- Type of Inspection Needed
- Permit Number
- Date/Time When Responsible Party Will Be Present
- Telephone Number of Contact Person

If the project is not ready for the inspection requested when the inspector arrives on the job site, the inspection will be rejected and a reinspection fee may be charged.

3. *Contractor or Responsible Adult Present During Inspection.* Inspectors will not enter the living portion of an occupied dwelling unless an adult with authority over the dwelling is present and gives permission.

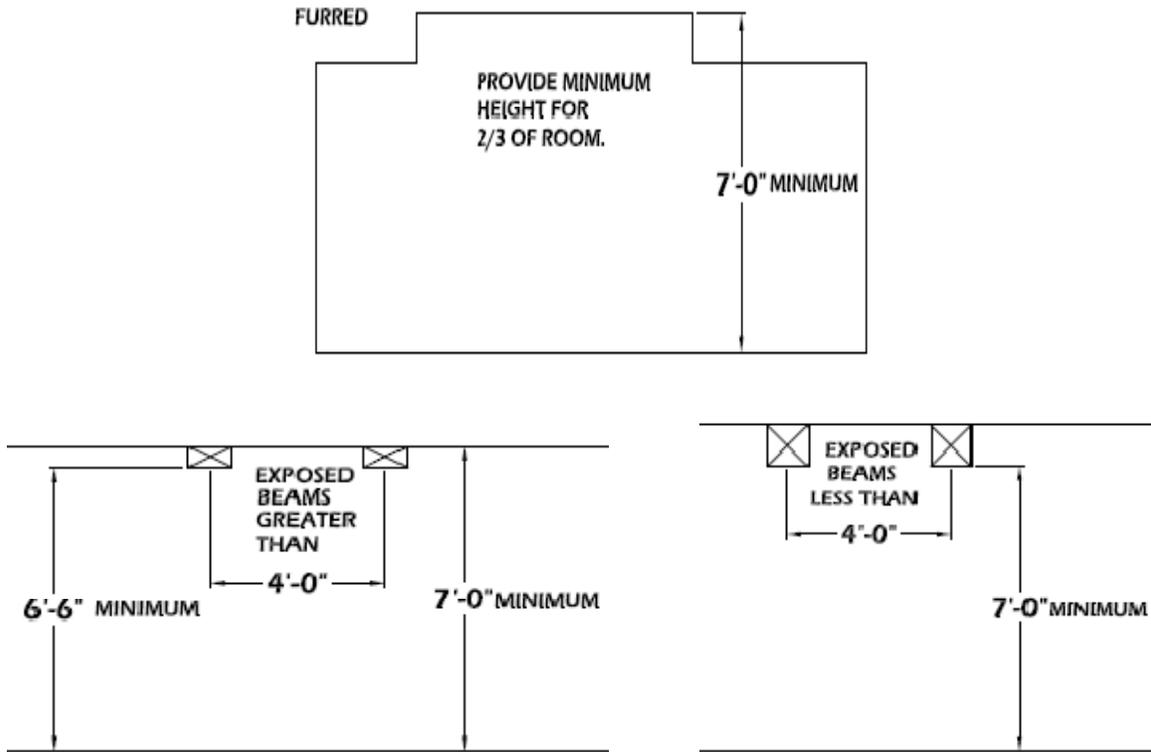
**Ceiling Height of Basements.** Portions of basements that do not contain habitable *space*, hallways, bathrooms, toilet rooms, and laundry rooms shall have a ceiling height of not less than 6 feet 8 inches. Beams, girders, ducts, or other obstructions may project to within 6 feet 4 inches of the finished floor.

**Minimum Height.** Habitable space, hallways, bathrooms, toilet rooms, laundry rooms, and portions of basements containing these spaces shall have a ceiling height of not less than 7 feet.

**Exceptions:**

- Bathrooms shall have a minimum ceiling height of 6 feet 8 inches at the center of the front clearance area for fixtures. The ceiling height above fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or

tub equipped with a showerhead shall have a minimum ceiling height of 6 feet 8 inches above a minimum area 30 inches by 30 inches at the showerhead.



*Ceiling heights*

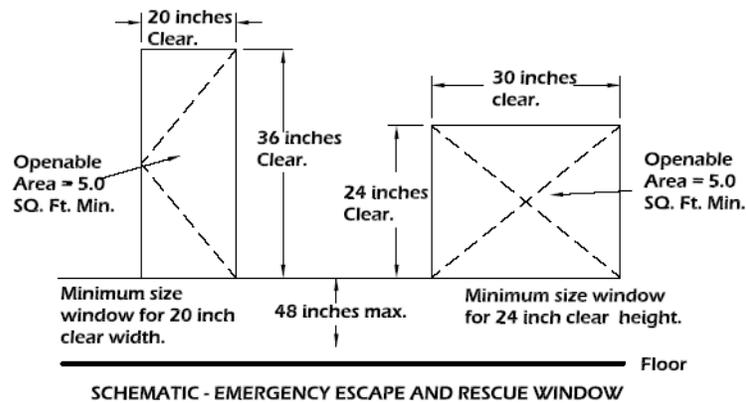
**Emergency Escape and Rescue Required.** Every level including basements and every sleeping room shall have at least one openable emergency escape and rescue window or exterior door opening for emergency escape and rescue. Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Plainly stated, every habitable level is required to have an egress window and every bedroom is required to have an egress window.

**Maximum Height.** Where emergency escape and rescue openings are provided as a means of escape and rescue, they shall have a sill height of not more than 48 inches above the floor.

**Clear Opening.** The minimum and net clear opening dimensions are based on the open area you are able to crawl through and are measured from the window in the open position to the adjacent stop or from stop to stop of the window in the open position.

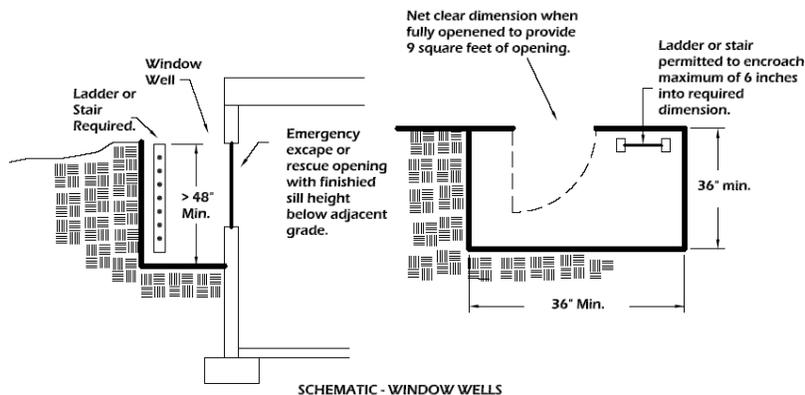
**Minimum Opening Area, Height, and Width.** All emergency escape and rescue openings shall have a minimum net clear opening of 5.0 square feet. The minimum net clear opening height shall be 24 inches. The minimum net clear opening width shall be 20 inches.

**Operational Constraints.** Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, tools, or special knowledge.

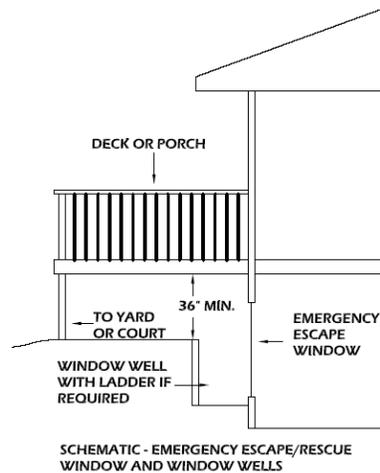


**Window Wells.** Emergency escape and rescue window openings with a finished sill height below the adjacent ground elevation shall be provided with a window well. Emergency escape and rescue openings shall open directly into a public way or to a yard or court that opens to a public way. Window wells 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.

- **Ladder and Steps.** Window wells, with a vertical depth greater than 48 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 stair provisions. 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.
- **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, and such devices shall be releasable or removable from the inside without the use of a key, tool, or special knowledge or force greater than that which is required for normal operation of the escape and rescue opening.

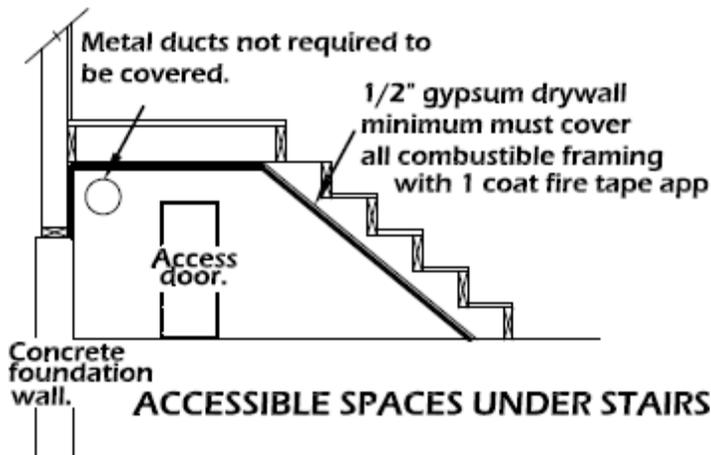


**Emergency Escape Windows Under Decks and Porches.** Emergency escape windows are allowed to be installed under decks and porches provided the location of the deck allows the emergency escape window to be fully opened and provides a path not less than 36 inches in height to a yard or court.

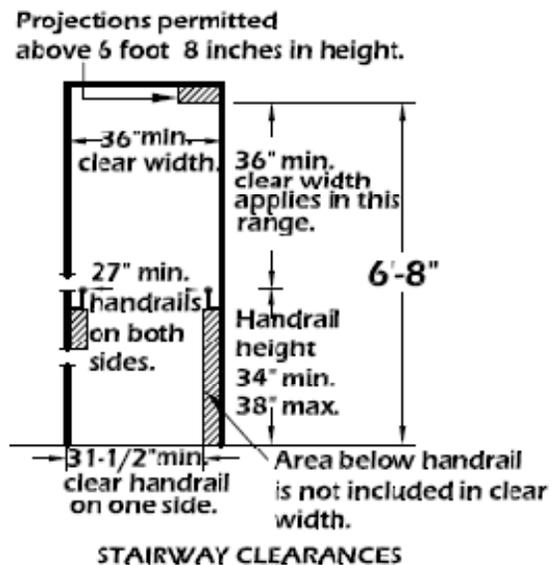


**Hallways.** The minimum width of a hallway shall be not less than 3 feet.

**Under Stair Protection.** Enclosed accessible space under stairs shall have walls, under-stair surface, and any soffits protected on the enclosed side with 1/2-inch gypsum board.

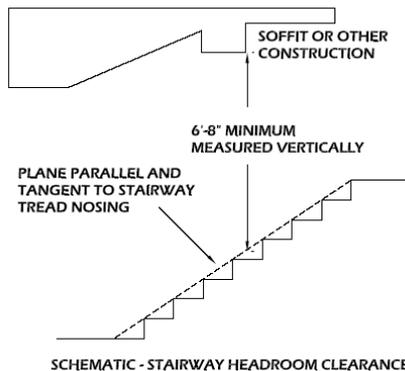


**Stairways.** Stairways shall not be less than 36 inches in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4.5 inches on either side of the stairway and the minimum clear width of the stairway at and below the handrail height, including treads and landings, shall not be less than 31 1/2 inches where



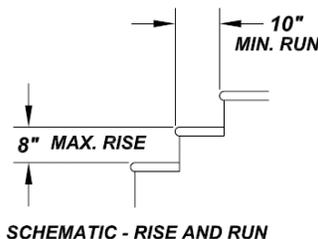
a handrail is installed on one side, and 27 inches where handrails are provided on both sides.

**Headroom.** The minimum headroom in all parts of the stairway shall not be less than 6 feet 8 inches measured vertically from the sloped plane adjoining the tread nosing or from the floor surface of the landing or platform.

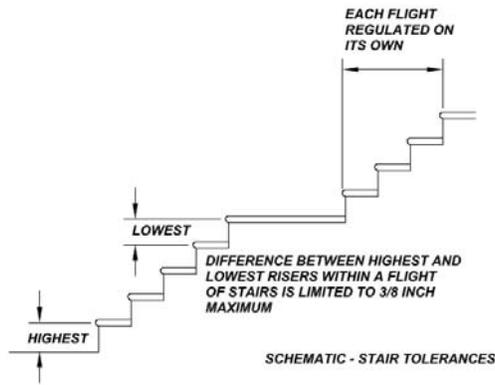


**Riser Height.** The maximum riser height shall be 8 inches. The riser shall be measured vertically between leading edges of the adjacent treads. This measurement is commonly referred to as “nose of tread to nose of tread.” Open risers are permitted.

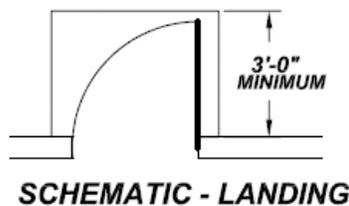
**Tread Depth.** The minimum tread depth shall be 10 inches. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread’s leading edge.



**Riser and Tread Continuity.** The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch. More commonly stated, a rise of stairs shall not have a variation greater than 3/8 of an inch.



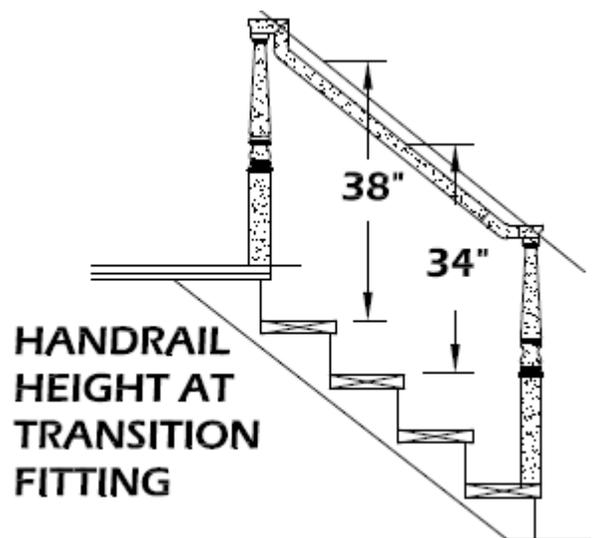
**Landings for Stairways.** There shall be a floor or landing at the top and bottom of each stairway.



The width of each landing shall not be less than the width of the stairway served. Every landing shall have a minimum dimension of 36 inches measured in the direction of travel. A floor or landing is not required at the top of an interior flight of stairs, provided a door does not swing over the stairs. A flight of stairs shall not have a vertical rise larger than 12 feet between floor levels or landings.

**Handrails.** Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers.

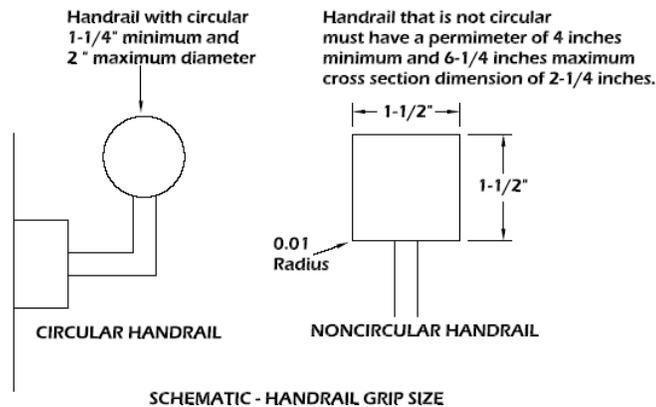
- **Height.** Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 34 inches and not more than 38 inches.
- **Exceptions:**
  1. The use of a volute, turnout, or starting easing shall be allowed over the lowest tread.
  2. When handrail fittings or bendings are used to provide continuous transition between flights, the transition from handrail to guardrail, or used at the start of a flight, the handrail height at the fittings or bendings shall be permitted to exceed the maximum height.



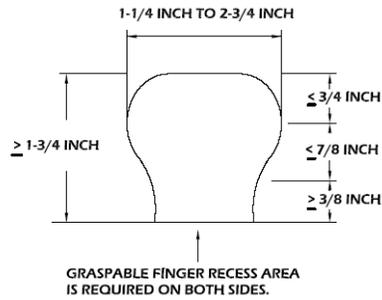
- *Continuity.* Handrails for stairways shall extend for the full length of the flight from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1 1/2 inches between the wall and the handrails.
  - **Exceptions:** Handrails shall be permitted to be interrupted by a newel post at the turn. The use of a volute, turnout, starting easing, or starting newel shall be allowed over the lowest tread.

**Handrail Grip Size.** All required handrails shall be of one of the following types or provide equivalent graspability:

- *Circular Handrails.* Handrails with a circular cross section shall have an outside diameter of at least 1 1/4 inches and not greater than 2 inches. If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches and not greater than 6 1/4 inches with a maximum cross section dimension of 2 1/4 inches.



- *Handrail Configurations.* Handrails with a perimeter greater than 6 1/4 inches shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 inch measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch within 7/8 inch below the widest portion of the profile. This required depth shall continue for at least 3/8 inch to a level that is not less than 1 3/4 inches below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1 1/4 inches to a maximum of 2 3/4 inches. Edges shall have a minimum radius of 0.01 inch.

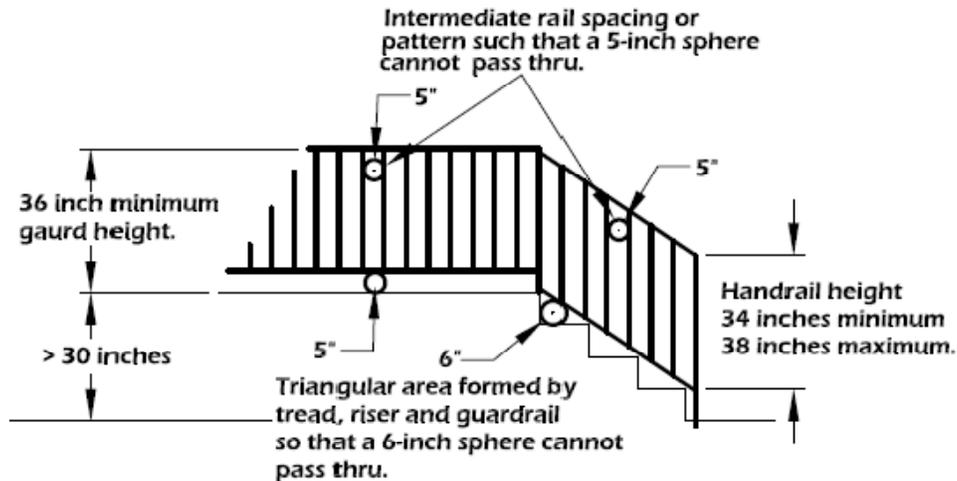


EXCEPTION: Exterior stairs are allowed to have a horizontal 2X member to form a 1-1/2 inch graspable dimension in lieu of the approved referenced perimeter dimensions.

SCHEMATIC- HANDRAIL CONFIGERATIONS

**Guards.** 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.

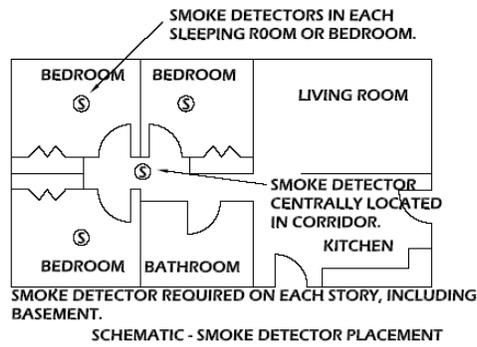
- Guard in-fill components (all those except the handrail), balusters, and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot.
- *Guard Opening Limitations.* Required guards on open sides of stairways, raised floor areas, shall have intermediate rails or ornamental closures which do not allow passage of a sphere 5 inches or more in diameter. The triangular openings formed by the riser, tread, and bottom rail of a guard at the open side of a stairway are permitted to be of such a size that a sphere 6 inches cannot pass through.



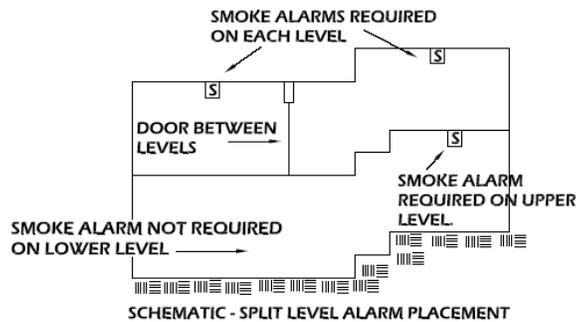
SCHEMATIC - GUARDS

**Smoke Alarms.** Smoke alarms shall be installed in the following locations:

- In each sleeping room.
- Outside each separate sleeping area in the immediate vicinity of the bedrooms.



- On each additional story of the dwelling, including basements but not including crawlspaces 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.



- Where the ceiling height of a room is open to the hallway serving a bedroom exceeds that of the hallway by 24 inches or more, smoke detectors shall be installed in the hallway and in the adjacent room. Hallways less than 4 feet in length are allowed to omit the smoke detector within the hallway adjacent to the bedrooms where the smoke detector is installed in the adjacent room with the higher ceiling.

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.

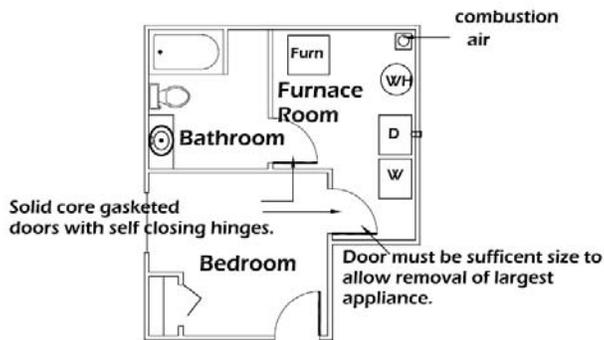
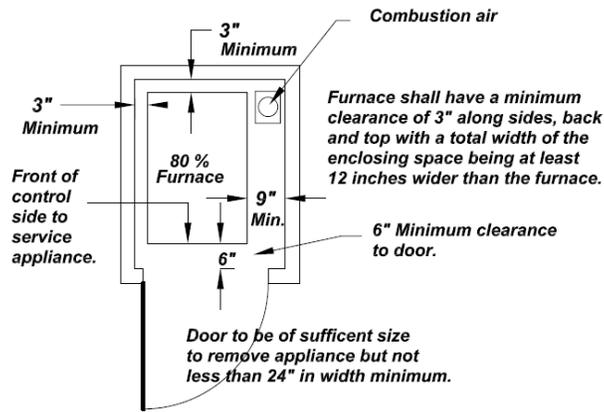
**Alterations, Repairs, and Additions.** When alterations, repairs, or additions requiring a permit occur with a valuation in excess of \$1,000, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped with smoke alarms located as required for new dwellings.

**Exception:** Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.

**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.

**Furnace Rooms.** Shall comply to the following:



Fuel-fired appliances shall not be located in, or obtain combustion air from, any of the following rooms or spaces:

1. Sleeping rooms.
2. Bathrooms.
3. Toilet rooms.
4. Storage closets.

Fuel fired equipment must receive combustion air directly from the exterior.

Access to such enclosure shall be through a solid door, gasketed and equipped with approved self-closing hardware.

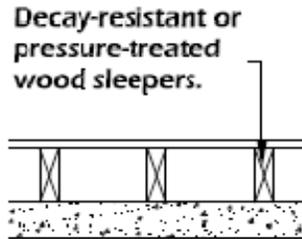
Doors shall be of sufficient size that the largest appliance may be removed through the door in the open position.

**Foam Plastic.** Foam plastic shall be separated from the interior of a building by an approved thermal barrier of minimum 1/2-inch gypsum wallboard. The gypsum board shall be installed using a mechanical fastening system. Reliance on adhesives to ensure that the gypsum board will remain in place when exposed to fire shall be prohibited.

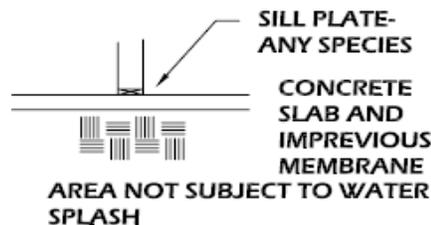
**Moisture Control.** In all framed walls, a vapor retarder such as 4-mil poly shall be installed on the warm in-winter side of the insulation or more plainly stated the interior side of the wall. Insulation and vapor barrier shall have a flame-spread index not to exceed 25 with an accompanying smoke-developed index not to exceed 450.

**Protection of Wood and Wood-Base Products Against Decay.** Protection of wood and wood-based products from decay shall be provided in the following locations by the use of naturally durable wood or wood that is preservative-treated in accordance with AWPA U1 for the species, product, preservative, and end use.

- Sills and sleepers supporting bearing walls on a concrete or masonry slab that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier.



- The ends of wood girders entering exterior masonry or concrete walls having clearances of less than 1/2 inch on tops, sides, and ends.

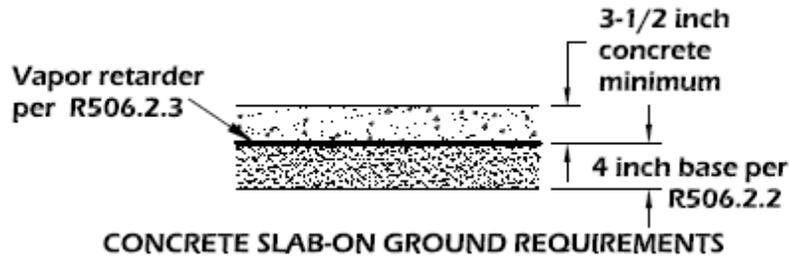


- Wood members, unless separated from such floors or roofs by an impervious moisture barrier.

**Wood Columns.** Wood columns shall be approved wood of natural decay resistance or approved pressure-preservative-treated wood.

**Exceptions:**

- Columns exposed to the weather or in basements when supported by concrete piers or metal pedestals projecting 1 inch above a concrete floor or 6 inches above exposed earth, and the earth is covered by an approved impervious moisture barrier.



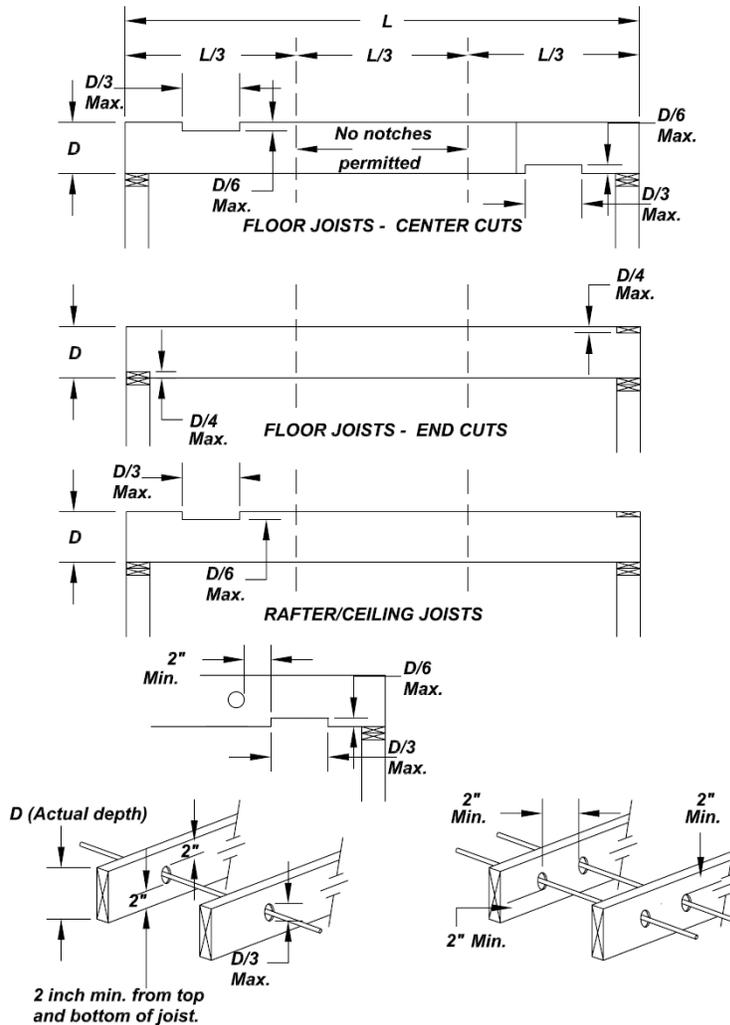
**Vapor Retarder.** A 6-mil polyethylene or approved vapor retarder with joints lapped not less than 6 inches shall be placed between the concrete floor slab and the base course or the prepared subgrade where no base course exists.

**Drilling and Notching.** Cutting and notching of structural elements shall comply with the following:

*Engineered Wood Products.* Cuts, notches, and holes bored in trusses, structural composite lumber, structural glue-laminated members, or I-joists are prohibited except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a registered design professional.

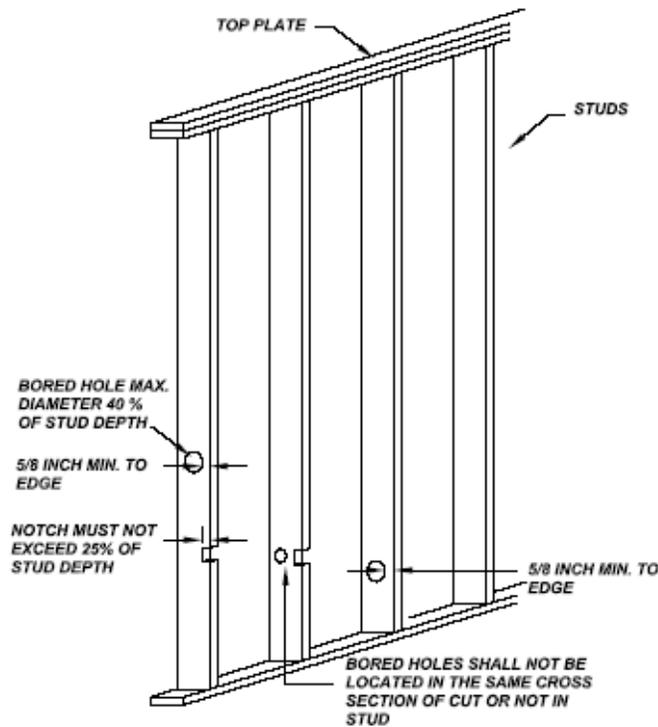
*Drilling and Notching of Floor Joists.* Notches in solid lumber joists, rafters, and beams shall not exceed one-sixth of the depth of the member, shall not be longer than one-third of the depth of the member, and shall not be located in the middle one-third of the span. Notches at the ends of the member shall not exceed one fourth the depth of the member. The tension side of members 4 inches or greater in nominal thickness shall not be notched except at the ends of the members.

The diameter of holes bored or cut into members shall not exceed one-third the depth of the member. Holes shall not be closer than 2 inches to the top or bottom of the member or to any other hole located in the member. Where the member is also notched, the hole shall not be closer than 2 inches to the notch.

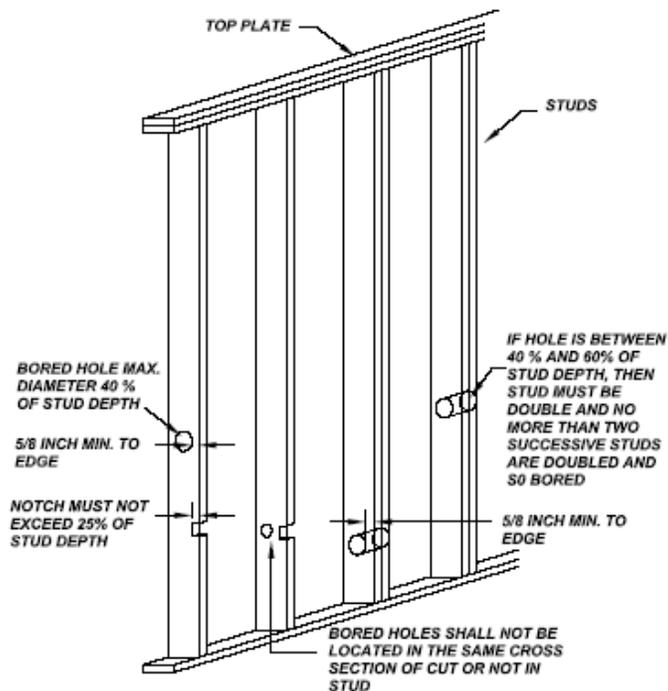


**Drilling and Notching—Studs.** Drilling and notching of studs shall be in accordance with the following:

- *Notching.* 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.
- *Drilling.* Any stud may be bored or drilled, provided that the diameter of the resulting hole is no more than 60 percent of the stud width, the edge of the hole is no more than 5/8 inch to the edge of the stud, and the hole is not located in the same section as a cut or notch. Studs located in exterior walls or bearing partitions drilled over 40 percent and up to 60 percent shall also be doubled with no more than two successive doubled studs bored.



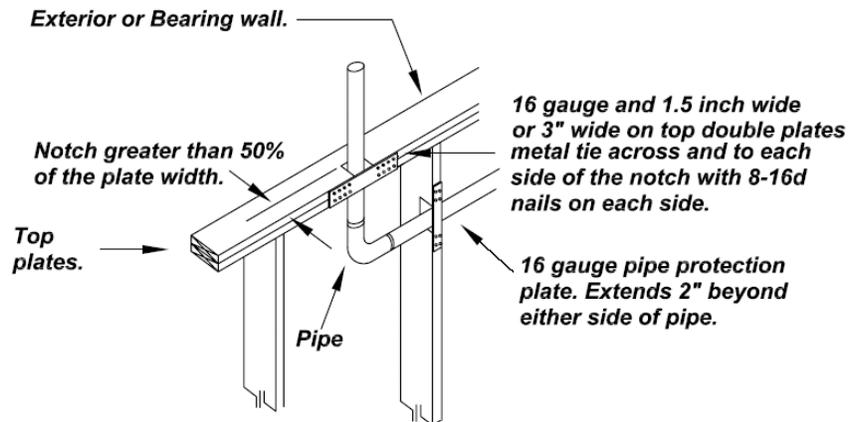
**SCHEMATIC - NOTCHING AND BORED HOLE LIMITATIONS FOR INTERIOR NONBEARING WALLS**



**SCHEMATIC - NOTCHING AND BORED HOLE LIMITATIONS FOR EXTERIOR WALLS AND BEARING WALLS**

**Drilling and Notching of Top Plate.** When piping or ductwork is placed in or partly in an exterior wall or interior load-bearing wall, necessitating cutting, drilling, or notching of the top plate by more than 50 percent of its width, a galvanized metal tie of not less than 0.054 inch

thick (16 ga) and 1 1/2 inches wide shall be fastened across and to the plate at each side of the opening with not less than eight 16d nails at each side or equivalent.

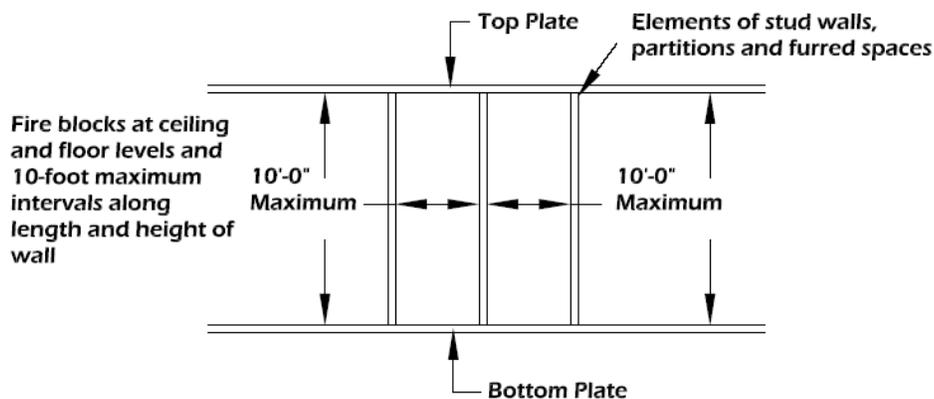


**SCHEMATIC - TOP PLATE FRAMING TO ACCOMADATE PIPING**

**Fire Blocking Materials.** Fire blocking shall consist of 2-inch nominal lumber, or two thicknesses of 1-inch nominal lumber with broken lap joints, or one thickness of 23/32-inch wood structural panels with joints backed by 23/32-inch wood structural panels, or one thickness of 3/4-inch particleboard with joints backed by 3/4-inch particleboard, 1/2-inch gypsum board, or 1/4-inch cement-based millboard.

**Unfaced Fiberglass.** Unfaced fiberglass batt insulation used as fire blocking shall fill the entire cross section of the wall cavity to a minimum height of 16 inches measured vertically. When piping, conduit, or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction.

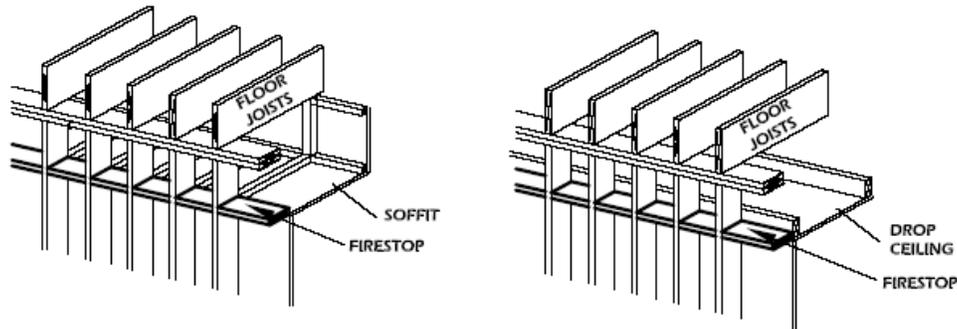
Fire blocking shall be installed in the following locations:



**SCHEMATIC- FIRE STOPS, 10-FOOT INTERVALS**

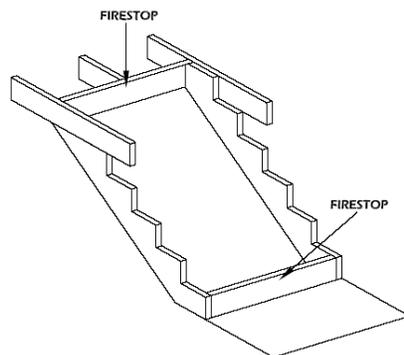
Batts or blankets of mineral wool or glass fiber or other approved materials installed in such a manner as to be securely retained in place shall be permitted as an acceptable fire block. Batts or blankets of mineral or glass fiber or other approved nonrigid materials shall be permitted for compliance with the 10-foot horizontal fire blocking in walls constructed using parallel rows of studs or staggered studs. Loose-fill insulation material shall not be used as a

fire block unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases.



**SCHEMATIC- CONCEALED AND HORIZONTAL VERTICAL SPACES**

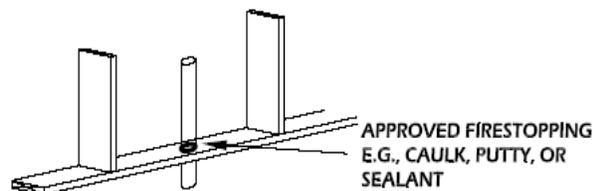
At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings, and cover ceilings.



**SCHEMATIC- FIRESTOPS, STAIRS**

In concealed spaces between stair stringers at the top and bottom of the run. Areas used for storage under stairs shall have a minimum of 1/2-inch gypsum board.

At openings around vents, pipes, ducts, cables, and wires at ceiling and floor level with an approved material to resist the free passage of flame and products of combustion.

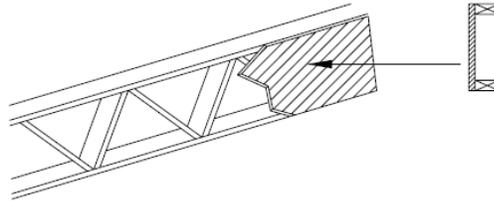


**SCHEMATIC-VENT/PIPE FIRESTOPPING**

**Draft Stopping.** Draft stopping required. When there is usable space both above and below the concealed space of a floor/ceiling assembly, draft stops shall be installed so that the area of the concealed space does not exceed 1,000 square feet. Draft stopping shall divide the concealed space into approximately equal areas. Where the assembly is enclosed by a

floor membrane above and a ceiling membrane below, draft stopping shall be provided in floor/ceiling assemblies under the following circumstances:

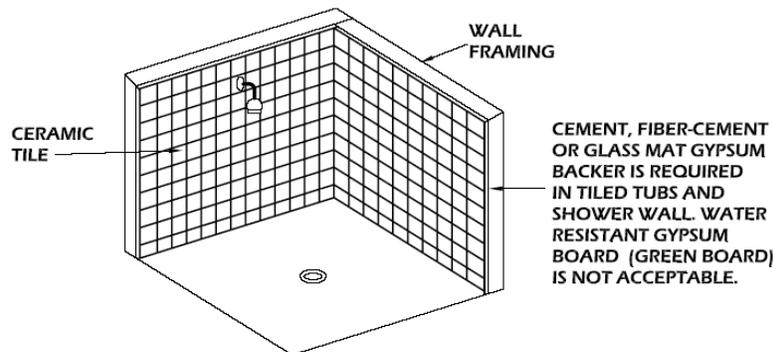
- Ceiling is suspended under the floor framing.
- Floor framing is constructed of truss-type open-web or perforated members.



**Materials.** Draft stopping materials shall not be less than 1/2-inch gypsum board, 3/8-inch wood structural panels, 3/8-inch Type 2-M-W particleboard, or other approved materials adequately supported. Draft stopping shall be installed parallel to the floor framing members unless otherwise approved by the building official. The integrity of all draft stops shall be maintained.

**Water-Resistant Gypsum Backing Board.** The use of water-resistant for 1/2-inch-thick minimum gypsum backing board shall be permitted on ceiling where framing spacing does not exceed 12 inches on center or 5/8-inch-thick minimum where framing does not exceed 16 inches on center.

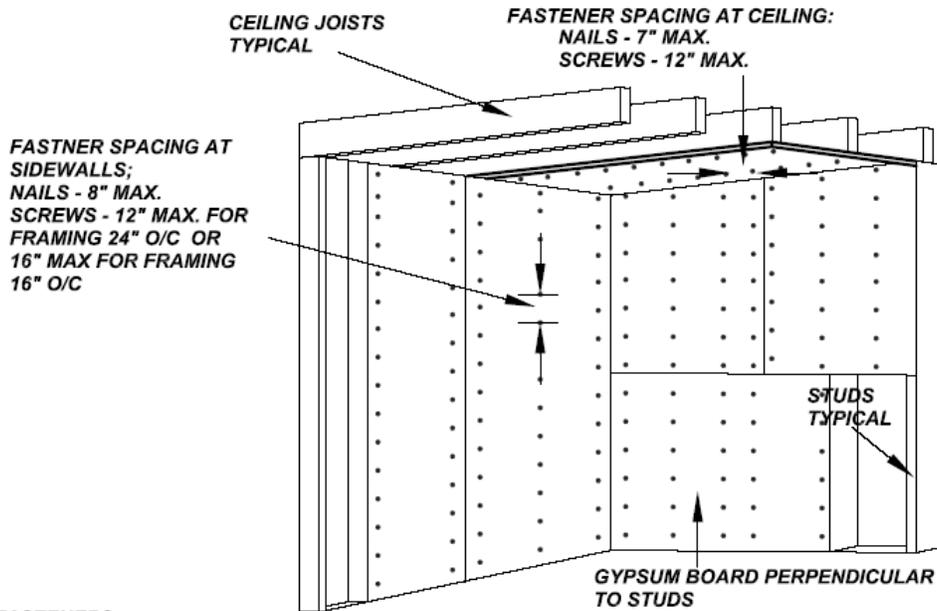
- Cement, fiber-cement, or glass mat gypsum backers installed in accordance with manufacturer's recommendations shall be used as backers for wall tile in tub and shower areas and wall panels in shower areas. Water-resistant gypsum board (commonly called green board) is not allowed in tub and shower tiled walls.



## Gypsum Wallboard

- *Walls.* Although 3/8-inch-thick gypsum wallboard is acceptable in some applications, it is recommended a gypsum wallboard of a minimum 1/2-inch thickness be used on interior walls to avoid warping.

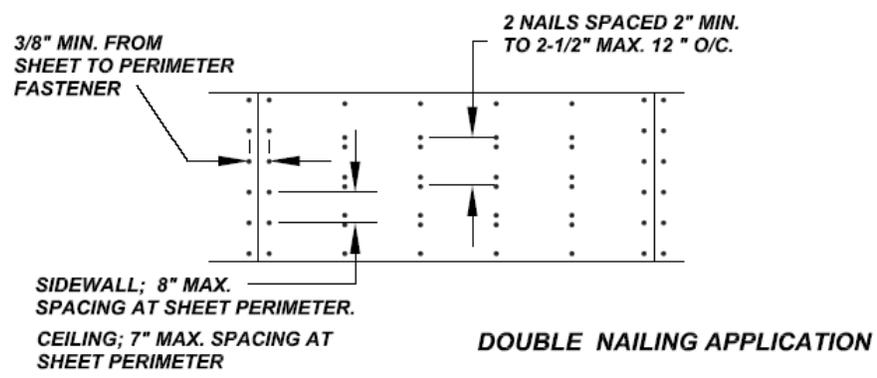
- Ceilings.** Again, 3/8-inch-thick gypsum wallboard is acceptable in some applications, it is recommended a gypsum wallboard of a minimum 5/8-inch thickness be used on lower level ceilings due to the potential of sagging. On ceiling applications to receive a water-based texture material, either hand or spray applied, the gypsum board shall be applied perpendicular to framing. When applying a water-based texture material, the minimum gypsum board thickness shall be 1/2-inch gypsum drywall for 16-inch on center framing and 5/8-inch minimum drywall for spans exceeding 16 inches on center.



**FASTENERS:**  
 1/2" THICK GYPSUM WALLBOARD - NO. 13 GAUGE, 1-3/8" LONG, 19/64" HEAD; 0.098" DIAMETER, 1-1/4" LONG, ANNULAR RINGED; 5d, COOLER OR WALLBOARD NAIL (0.086 DIA., 1-5/8" LONG, 15/64" HEAD)

5/8" THICK GYPSUM WALLBOARD - NO. 13 GAUGE, 1-5/8" LONG, 19/64" HEAD; 0.098" DIAMETER, 1-3/8" LONG, ANNULAR RINGED; 6d COOLER OR WALLBOARD NAIL (0.0926" DIA., 1-7/8" ;PMG. 1/4" HEAD)

**SINGLE NAILING APPLICATION**



**SCHEMATIC - GYPSUM SINGLE AND DOUBLE NAILING APPLICATIONS**