

OTHER GENERAL CONSTRUCTION REQUIREMENTS: Residential

Foundation

All exterior walls of residential construction shall be supported by a continuous footing with a minimum depth of 18 inches into natural grade. Each such footing shall contain two No. 4 steel reinforcing bars. Concrete slabs shall be placed on a 2-inch bed of sand on 6 mil Visqueen Vapor Barrier.

Under-floor clearance

When wood joists are located closer than 18 inches or wood girders are located closer than 12 inches to exposed ground in crawl spaces or unexcavated areas located within the building foundation, the floor assembly including posts, girders, joists and subfloor, shall be approved wood or natural resistance to decay or pressure-treated wood.

Foundation Ventilation

Under floor areas shall be ventilated by openings in the exterior foundation walls. Such openings shall have a net area of not less than 1 sq. ft. for each 150 sq. ft. of under-floor area. Openings for under-floor ventilation shall be not less than 1 ½ square feet for each 25 linear feet of exterior wall. They shall be covered with corrosion-resistant wire mesh with mesh openings not less than ¼ inch nor more than ½ inch in any dimension. The required area of such openings shall be equally distributed along the length of at least two opposite sides.

Girders Entering Concrete walls

Ends of wood girders entering concrete walls shall be provided with a ½ inch air space on tops, sides, and ends unless approved wood of natural resistance to decay or treated wood is used.

Wood and earth separation

Wood used in construction of permanent structures and located nearer than 8 inches to earth shall be treated wood or wood of natural resistance to decay. Where located on concrete slabs, wood shall be treated wood or wood of natural resistance to decay.

Foundation plates or sills.

Foundation plates or sills shall be bolted or anchored to the foundation with not less than 5/8 inch-diameter steel bolts or approved anchors. Bolts shall be embedded at least 7 inches into concrete or masonry, and spaced not more than 6 feet apart. There shall be a minimum of two bolts or anchor straps per piece with one bolt or anchor strap located not more than 12 inches or less than 4 inches from each end of each piece. A properly sized nut and washer shall be tightened on each bolt to the plate.

Steel plate washers.

Steel plate washers shall be placed between the foundation sill plate and the nut. Such washers shall be a minimum of 0.229 inch by 3 inches by 3 inches. The hole in the plate washer is permitted to be diagonally slotted with a width of up to 3/16 inch larger than the bolt diameter and a slot length not to exceed 1-3/4 inches, provided a standard cut washer is placed between the plate washer and the nut.

Post-beam connections

Positive connection shall be provided to ensure against uplift and lateral displacement.

Foundation cripple walls

Cripple walls shall be framed of studs not less in size than the studding above. Stud less than 14 inches in height shall be laterally braced with solid blocking or plywood sheathing. Cripple walls greater than 14 inches in height shall be braced as required for first story walls.

Stud height limitations

Bearing wall floor-to-floor heights for 2x4 studs shall not exceed a stud height of 10 feet plus a height of floor framing not to exceed 16 inches. Utility grade studs limited to 8 feet maximum.

Pipes in walls

Stud partitions containing plumbing, heating, or other pipes shall be so framed and the joists underneath so spaced as to give proper clearance for the piping. Where a partition containing such piping runs parallel to the floor joists, the joists underneath such partitions shall be doubled and spaced to permit the passage of such pipes and shall be bridged. Where plumbing, heating, or pipes are placed in or partly in a partition, necessitating the cutting of the soles or plates, a metal tie not less than 1/8 inch thick and 1-1/2 inches side shall be fastened to the plate across and to each side of the opening with not less than four 16d nails.

Cutting and notching

Notches on the ends of joists shall not exceed 1/4 the joist depth. Holes bored in joists shall not be within 2 inches of the top or bottom of the joist, and the diameter of any such hole shall not exceed 1/3 the depth of the joist.

Notches in the top or bottom of joists shall not exceed 1/6 the depth of the joist and shall not be located in the middle third of the span, except that a notch not exceeding one-third of the depth is permitted in the top of the rafter or ceiling joist not further from the face of the support than the depth of the member. In exterior walls and bearing partitions, any wood stud may be cut or notched to a depth not exceeding 25% of its width. Cutting or notching of studs to a depth not greater than 40% of the width of the stud is permitted in non-bearing partitions supporting no loads other than the weight of the partition.

Bored holes

A hole not greater in diameter than 40% of the stud width may be bored in any wood stud. Bored holes not greater than 60% of the width of the stud are permitted in non-bearing partitions or in any

wall where each bored stud is doubled, provided not more than two such successive doubled studs are so bored. In no case shall the edge of the bored hole be nearer than 5/8 of an inch to the edge of the stud. Bored holes shall not be located at the same section of stud as a cut or notch.

Holes bored in rafters or ceiling joists shall not be within 2 inches of the top and bottom and their diameter shall not exceed one-third the depth of the member.

Braced wall line spacing

Spacing between interior and exterior braced wall lines shall not exceed 25 feet.

Roof and ceiling framing

When the roof slope is less than 3:12, members supporting rafters and ceiling joists such as ridge boards, hips, and valleys shall be designed by an engineer. Rafters shall be framed directly opposite each other at the ridge. There shall be a ridge board at least 1 inch nominal thickness and not less in depth than the cut end of the rafter.

Purlins

Purlins that support roof loads may be installed to reduce the span of rafters within allowable limits and shall be supported by struts to bearing walls. The maximum span of 2 x 4 purlins shall be 4 feet; the maximum span of 2 x 6 purlins shall be 6 feet, but in no case shall the purlin be smaller than the supported rafter. Struts shall not be smaller than 2 x 4. The unbraced length of struts shall not exceed 8 feet and the minimum slope of the struts shall be not less than 45 degrees from the horizontal.

Blocking

Roof rafters and ceiling joists shall be supported laterally to prevent rotation and lateral displacement.

Framing around openings.

Trimmer and header rafters shall be doubled, or of lumber of equivalent cross section, where the span of the header exceeds 4 feet. The ends of header rafters more than 6 feet long shall be supported by framing anchors or rafter hangers unless bearing on a beam, partition or wall.

Attic ventilation

Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain. Blocking and bridging shall be arranged so as not to interfere with the movement of air. A minimum of 1 inch of airspace shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150 of the area of the space ventilated, with 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.

ROOM DIMENSIONS

Ceiling Heights

Occupiable spaces, habitable spaces and corridors shall have a ceiling height of not less than 7 feet 6 inches. Bathrooms, toilet rooms, kitchens, storage rooms and laundry rooms shall be permitted to have a ceiling height of not less than 7 feet.

Width

Habitable rooms other than a kitchen shall not be less than 7 feet in any plan dimension. Halls shall be not less than 3 feet in width. Kitchens shall have a clear passageway of not less than 3 feet between counter fronts and appliances or counter fronts and walls.

Floor Area.

Every dwelling unit shall have at least one room that shall have not less than 120 square feet of net floor area. Other habitable rooms except the kitchen shall have a net floor area of not less than 70 square feet. Every kitchen shall have not less than 50 square feet of gross floor area.

LIGHT AND VENTILATION

General

For the purpose of determining light and/or ventilation requirements, any room may be considered as a portion of an adjoining room when $\frac{1}{2}$ of the area of the common wall is open and unobstructed and provides an opening of not less than $\frac{1}{10}$ th of the floor area of the interior room or 25 sq. ft., whichever is greater. Required windows may open into a roofed porch where the porch cover has a height of not less than 7 feet and the longer side is at least 65% open and unobstructed.

Light

All habitable rooms within a dwelling shall be provided with natural light by means of openable exterior openings with an area not less than $\frac{1}{10}$ th of the floor area of such rooms with a minimum of 10 sq. ft. Every space intended for human occupancy shall be provided with natural light by means of exterior glazed openings or shall be provided with artificial light adequate to provide an average illumination of 10 foot-candles (107 lux) over the area of the room at a height of 30 inches above the floor level. Exterior glazed openings shall open directly onto a public way or onto a yard or court not less than 3 feet in width.

Ventilation

Natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

All bathrooms, water closet compartments, laundry rooms and similar rooms shall be provided with natural ventilation by means of openable exterior openings with an area not less than 4 percent of the floor area of such rooms with a minimum of 1-1/2 sq. ft. In lieu of required exterior openings for natural ventilation in bathrooms containing a bathtub or shower or combination thereof, laundry rooms, or similar rooms, a mechanical ventilation system shall be provided. Bathrooms which contain only a toilet or lavatory or combination thereof, and similar rooms may be ventilated with an approved mechanical recirculating fan or similar device designed to remove odors from the air.

GARAGE/DWELLING SEPARATION

The private garage shall be separated from the dwelling unit and its attic area by means of a minimum 1/2-inch gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than a 5/8-inch Type X gypsum board or equivalent. Door openings between a private garage and the dwelling unit shall be equipped with either solid wood doors or solid or honeycomb core steel doors not less than 1-3/8 inches thick or 20 minute rated doors. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Doors shall be self-closing and self-latching.

Ducts in a private garage and ducts penetrating the walls or ceilings separating the dwelling unit from the garage shall be constructed of a minimum 0.019-inch sheet steel and shall have no openings into the garage.

A separation is not required between a dwelling unit and a carport, provided the carport is entirely open on two or more sides and there are not enclosed areas above.

EMERGENCY ESCAPES

Every sleeping room shall have at least one operable window or door approved for emergency escape or rescue which shall open directly into a yard. The window or door shall be openable from the inside to provide a full clear opening without the use of separate tools.

Emergency escape and rescue openings for grade-floor sleeping rooms shall have a minimum net clear opening of 5 square feet. Emergency escape and rescue openings for sleeping rooms above the grade-floor shall have a minimum net clear opening of 5.7 square feet.

The minimum net clear openable height dimension shall be 24 inches. The minimum net clear openable width dimension shall be 20 inches. Emergency escape and rescue openings shall have the bottom of the clear opening not greater than 44 inches measured from the floor.

ROOF/RE-ROOF

If you are going to re-roof over an existing roof (up to three layers), you must have the existing roof pre-inspected to determine its structural condition and its layers. For tear-off/re-roof, you must request for inspection to verify existing sheathing when the old roof is removed. Flat roofs require tear/off sheathing inspection and base sheet for nailing. Upon completion, you must request for a final inspection.

SECURITY BARS/GRILLS

Security bars, grills or screen placed over openable windows or doors required for emergency egress,

shall be openable from the inside without the use of a key or special knowledge.

SMOKE DETECTORS

Smoke detectors are required to be connected to the electric wiring and shall be installed in each sleeping room and at a point centrally located in the area giving access to each separate sleeping area. When the house has more than one story, a smoke detector shall be installed on each story. Battery operated smoke detectors are permitted only in existing constructions.

DOORS

Opening size

Every building shall have at least one exit door. An exit door shall be a minimum of 3 feet wide and 6 feet 8 inches high. Sliding and overhead doors shall not be used as required exits.

Swing Requirements

When doors swing out over a landing, the landing shall not be lower than 1 inch below that of the door threshold. A door may open at the top step of a flight of stairs or at a landing which is not more than 7-3/4 inches lower than the floor level, **provided the door does not swing over the top step or landing**. When doors swing over a landing, the landing shall have a dimension in the direction of travel of not less than the width of the door but need not be more than 36 inches.

HEATING

Interior spaces intended for human occupancy shall be provided with active or passive space-heating systems (exclusive of fireplaces or electric heaters) capable of maintaining a minimum indoor temperature of 68°F at a point 3 feet above the floor on the design heating day.

ENERGY CONSERVATION REQUIREMENTS

New dwellings and additions to existing dwellings must conform to State mandated energy conservation regulations. Unless calculations are prepared by an energy consultant, the following requirements shall be incorporated into the construction of room additions of new conditioned space:

- R-13 - Wall insulation.
- R-30 - Ceiling insulation.
- R-19 - Raised floor insulation. (R-value is a unit of thermal resistance used for comparing insulating values of different material).
- New windows shall have a maximum U-value of .75 or be dual glazed. (U-value is the heat flow rate through a material)
- New window area shall not exceed 20% of the new floor area.
- Plumbing fixtures, such as, faucets and showerheads shall be of a low flow type.
- Toilets installed in new construction shall be limited to a maximum capacity of a 1.6 gallon flush.
- Mechanical appliances, such as, water heaters, furnaces and air conditioners shall be energy efficient.
- Windows and doors must be caulked and weather stripped. (Energy regulations are subject to change by State Mandate)

ACCESS OPENINGS

Under Floor Areas

Accessible under floor areas shall be provided with a minimum 18 inches by 24 inches access opening unobstructed by pipes, ducts and similar construction. All under floor access openings shall be effectively screened or covered.

Attics

Attics with more than 30 inches of clear vertical height require an access opening not less than 22 inches by 30 inches. If the forced air unit is located in the attic, the access opening shall be as large as the largest piece of the forced air unit.

STAIRS

General

Every stairway having one or more risers shall conform to the following requirements:

Width, Rise, Run, and Headroom

Stairways shall not be less than 36 inches in width. The rise of every step in a stairway shall be not less than 4 inches or greater than 7-3/4 inches. The run shall be not less than 10 inches. Every stairway shall have a headroom clearance of not less than 6 feet 8 inches.

GUARDRAILS

All unenclosed floor openings, open sides of landings, balconies or porches which are more than 30 inches above grade or floor below, shall be protected by a guardrail. Guardrails shall be not less than 42 inches in height. Open guardrail and stair railings shall have intermediate rails or an ornamental pattern such that a sphere 4 inches in diameter cannot pass through.

MECHANICAL REQUIREMENT

Appliances Installed In Garages

Appliances installed in garages, or other areas where they may be subjected to damage shall be suitably guarded by being installed behind protective barriers or located out of the normal path of vehicles. The minimum interior dimensions of a one-car garage is 9 feet by 20 feet and 18 feet by 20 feet for a two-car garage. Heating and cooling equipment located in a garage which generates a glow, spark or flame capable of igniting flammable vapors shall be installed with pilots and burners or heating elements and switches at least 18 inches above the floor level.

Domestic Clothes Dryers

Domestic clothes dryers shall be exhausted to the outside. Moisture exhaust ducts shall not terminate beneath the building or in the attic area.

PLUMBING REQUIREMENTS

Showers

Showers shall have a smooth, hard, nonabsorbent surface such as ceramic tile or other approved material to a height of no less than 70 inches above the drain inlet. All shower compartments shall have a minimum finished interior of 1,024 square inches and shall be capable of encompassing a 30 inch diameter circle. Glazing in shower and bathtub doors and enclosures shall be safety glazing. Hinged shower doors shall open outward.

Toilets

Each toilet stool shall be located in a clear space not less than 30 inches in width and have a clear space in front on the toilet of not less than 24 inches.

Water heaters

No water heater which depends on the combustion of fuel for heat shall be installed in any room used or designed to be used for sleeping purposes, bathroom, closet, or other confined space opening into any bathroom or bedroom. Water heaters installed outside shall be set in an approved enclosure. Such installation will require Planning Division approval.