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## Single Family Home Requirements from the State Building Code

(Based on the IRC2009 as amended by MUBEC)

Below are some of the common topics for home construction and renovation. These are highlights of the code sections only for informational purpose and are not a substitution for the code (IRC 2009 as amended by MUBEC)

### Unfinished Buildings

**Based on R110.4** - People often want to move into unfinished buildings. This is acceptable as long as code required sewer, water, egress, smoke & carbon monoxide detection, light, and heat (if applicable) facilities are in place. Unused/incomplete electrical connections must such that someone cannot touch live parts. Doors without completed steps, stoops, decks, etc. must be secured so that the door cannot be readily opened. Plumbing without a fixture must be capped.

### Sanitation

**R306.1 – R306.4** – Every dwelling unit shall be provided with a water closet, lavatory, a bathtub or shower and a kitchen area with a sink. All plumbing fixtures shall be connected to a public sewer or approved private septic system. The plumbing shall be connected to an approved water supply. Kitchen sinks, lavatories, bathtubs, showers, bidets, laundry tubs and washing machine outlets shall be provided with hot and cold water.

### Attached garages

**R302.6 - R309** - An attached garage must be separated from the rest of the building by a layer of ½” sheetrock on the garage side of a common wall, or if the garage is below the living space, a layer of 5/8” type X sheetrock on the garage ceiling and ½” sheetrock on all walls supporting the living space, with all joints and screw-heads taped and finished. There can be no door between a garage and a sleeping room. Doors in walls between the garage and house must be 20 minute rated, metal clad, or a solid wood door at least 1 3/8” thick, and cannot have glass in them unless fire rated. The garage floor must be noncombustible and sloped toward a drain or the vehicle door.

### Glazing

**R308** - In this section glass may have to be tempered depending on its location in the building. Section R308.4 goes over the specific Hazardous locations where safety glass is required. This is a detailed section that you should become familiar with before ordering your windows. Common glass that will need to be tempered unless exempt are; glass greater than 9 square feet if less than 18” off the floor if more than 36” off the floor if within 3 feet of a walking surface; glass within 60” above of either a walking surface of a stairway or within 60” of the bottom tread of a stairway; glass within a 24” arc of either side of a door whose bottom edge is within 60” of the floor; glass in tub or showers enclosures within 60” of a standing surface such as a floor of ledge. If you have any questions, please ask.

### Emergency Escape and Rescue Openings

**R310, R612.4.2** - *Basements, habitable attics and every sleeping room* shall have at least one operable emergency escape and rescue opening, typically a window, operable from the inside of the room without the use of keys, tools or special knowledge, with a clear opening when opened at least 20" in width, 24"

in height, and at least 5.7 sq. ft. in area, with the sill no more than 44" above the floor, unless the room has a door directly to the outside or a way out of the room independent of the primary means such as a bulkhead enclosure per R310.3 or a window well per R310.2. Note that 20" x 24" is **not** 5.7 sq. ft. The 20" and 24" dimensions are minimums. This requirement supersedes any window specifications that might be on plans.

### **Means of Egress**

**R311** - Each dwelling unit must have at least one **egress door** with a clear opening width of 32" X 6' – 8". A landing at least 3' x 3' is required on the outside of this door. The floor on the outside of an exterior door can be up to 7 3/4" below the top of the threshold provided the door does not swing over the landing. For other exterior doors, a landing is not required at the top of stairs of two or fewer risers, unless the door swings over the stairs. Screen/storm doors are allowed to swing over stairs and landings. **Stair width** must be at least 3' above the handrail height and below the required headroom height, handrails may project up to 4 1/2" 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 be 31 1/2" where one handrail is used and 27" where a handrail is provided on both sides. **Headroom** must be a minimum of 6'-8" measured vertically at any point above a sloped line across the points of the stairs as and landings. **Steps** must have a minimum tread depth of 10", and a maximum riser height of 7 3/4", risers must be solid or built such that a 4" sphere cannot pass through them if the total rise of the stairs is over 30". **Winder** treads must have a minimum depth of 6", and must be at least 10" deep 12" from the narrow end. The total rise of a flight of stairs cannot exceed 12' between floor levels or landings. The largest tread or riser has to be within 3/8" of the smallest one. Stairs must have a floor or landing at the top and bottom, at least as wide as the stair is, and at least 36" deep, except that a landing is not required at the top of an interior set of stairs as long as a door does not swing over the stairs. Stairs with four or more risers must have at least one **handrail**, located above all portions of the treads, between 34" and 38" above the tread nosing, continuous between floors, with ends terminating at wall or newel post so as not to snag clothing. Circular handrails must be between 1.25" and 2" in diameter. Other shapes with a perimeter dimension between 4" and 6.25" with no cross sectional dimension greater than 2 1/4" are acceptable. Rails with a perimeter greater than 6.25" must have a finger grip routed in both sides. Ask for details. Edges must be rounded.

### **Guards**

**R312, R612.2** - Open sides of ramps, landings, porches, walkways, etc. over 30" above adjacent the floor or ground must have a **guardrail** at least 36" high within 36" of the edge of the open side. Guards on stairs can be as low as 34". Required guards shall have balusters or other members arranged so that a 4" sphere cannot pass through them, except that the triangular opening formed by the guard, tread, and riser can be such that a 6" sphere cannot pass through it, and railings on the open sides of stairs can be such that a 4 3/8" sphere cannot pass through them. **Windows located more than 6' above grade R612.2** - Operable sections of windows shall not permit openings that allow passage of a 4 inch (102 mm) diameter sphere where such openings are located within 24 inches (610 mm) of the finished floor (see R612.2 for exceptions).

### **Smoke Detectors**

**R314.1** Smoke detection and notification. All smoke alarms shall be listed in accordance with UL 217 and installed in accordance with the provisions of this code and the household fire warning *equipment* provisions of NFPA 72.

**R314.3 Location.** Smoke alarms shall be installed in the following locations:

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

3. On each additional *story* of the *dwelling*, including *basements* and habitable attics but not including crawl spaces and uninhabitable *attics*. In *dwelling*s 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.

**R314.3.1** Alterations, repairs and additions. When *alterations*, repairs or *additions* requiring a *permit* occur, or when one or more sleeping rooms are added or created in existing *dwelling*s, the individual *dwelling unit* shall be equipped with smoke alarms located as required for new *dwelling*s. **Exceptions:** 1. Work involving the exterior surfaces of *dwelling*s, 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. 2. Installation, *alteration* or repairs of plumbing or mechanical systems are exempt from the requirements of this section.

**R314.4** Power source. 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 overcurrent protection. Smoke alarms shall be interconnected.

**Exceptions:**

1. Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power.
2. Interconnection and hard-wiring of smoke alarms in existing areas shall not be required 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.

### **Carbon Monoxide Detectors**

**R315.1** Carbon monoxide alarms. For new construction, an approved carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in *dwelling units* within which fuel-fired *appliances* are installed and in dwelling units that have attached garages.

**R315.2** Where required in existing dwellings. Where work requiring a *permit* occurs in existing *dwelling*s that have attached garages or in existing dwellings within which fuel-fired *appliances* exist, carbon monoxide alarms shall be provided in accordance with Section R315.1.

**R315.3** Alarm requirements. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

### **Foam Insulation**

**R316** - Foam plastic insulation on the inside of the house requires a thermal barrier, unless it's tested and approved by a nationally recognized agency for use without one or is otherwise exempt by the section.

### **Floor Fire Protection**

**R501.3 (Section added by MUBEC)** – If the floor area is greater than 80sqft., built using smaller than dimensional 2x10 lumber or built using engineered joists and is not located over an empty crawl space; ½” sheetrock, 5/8” wood structural panel or equivalent fire rated material is required to be applied to the underside of the framing. In other words, your basement ceiling may need sheetrock. Also see the handout ***MUBEC Residential Building Code section R501.3, Fire Protection of Floors***