

Basement Information – Code(s)

SECTION R303 LIGHT, VENTILATION & 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 four 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 mechanical ventilation system is provided capable of producing 0.35 air change per hour in the room or a whole-house mechanical ventilation system is installed capable of supplying outdoor ventilation air of 15 cubic feet per minute (cfm) (7.08L/s) per occupant computed on the basis of two occupants for the first bedroom and one occupant for each additional bedroom.
2. The glazed areas need not be provided in rooms where Exception 1 above is satisfied and artificial light is provided capable of producing an average illumination of 6 foot-candles (6.46 lux) over the area of the room at a height of 30 inches (762 mm) above the floor level.

R303.2 Adjoining Rooms. For the purpose of determining light and ventilation requirements, any room shall be considered as a portion of an adjoining room when at least one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one-tenth of the floor area of the interior room but not less than 25 square feet (2.32 m²)

R303.3 Bathrooms. Bathrooms, water closet compartments and other similar rooms shall be provided with aggregate glazing area in windows of not less than 3 square feet (0.279 m²), one half of which must be openable

Exceptions: The glazed areas shall not be required where artificial light and a mechanical ventilation system are provided. The minimum ventilation rates shall be 50 cfm (23.6L/s) for intermittent ventilation or 20 cfm (9.4 L/s) for continuous ventilation. Ventilation air from space shall be exhausted directly to the outside.

R303.4 Stairway Illumination. All interior and exterior stairways shall be provided with a means to illuminate the stairs, including the landings and treads. Interior stairways shall be provided with an artificial light source located in the immediate vicinity of each landing of the stairway. Exterior stairways providing access to a basement from the outside grade level shall be provided with an artificial light source located in the immediate vicinity of the bottom landing of the stairway.

Exception: An artificial light source is not required at the top and bottom landing, provided an artificial light source is located directly over each stairway section.

Basement Information – Code(s)

R303.4.1 Light Activation. The control for activation of the required interior stairway lighting shall be accessible at the top and bottom of each stair without traversing any step of the stair. The illumination of exterior stairs shall be controlled from inside the dwelling unit.

Exception: Lights that continuously illuminated or automatically activated.

R303.5 Required Glazed Openings. Required glazed openings shall open directly onto a street or public alley, or a yard or court located on the same lot as the building.

R303.5.1 Roofed Porches. Required glazed openings may face into a roofed porch where the porch abuts a street, yard or court and the longer side of the porch is at least 65 percent open and unobstructed and the ceiling height is not less than 7 feet (2134 mm)

R303.6 Required Heating. When the winter design temperature in the Table R301.2(1) is below 60°F (20°C) at a point 3 feet (914 mm) above the floor and 2 feet (610 mm) from exterior walls in all habitable rooms at the design temperature.

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 (11.2 m²) of gross floor area.

R304.2 Other Rooms. Other habitable rooms shall have a floor area of not less than 70 square feet (6.5m²)

Exception: Every kitchen shall have not less than 50 square feet (4.64 m²) of gross floor area.

R304.3 Minimum Dimensions. Habitable rooms shall not be less than 7 feet (3124 mm) in any horizontal dimension.

Exception: Kitchens

R304.4 Height Effect on Room Area. Portions of a room with a sloping ceiling measuring less than 5 feet (1524 mm) or a furred ceiling measuring less than 7 feet (3124 mm) or a 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, toilet rooms, laundry rooms and basements shall have a ceiling height of not less than 7 feet (2134 mm). The required height shall be measured from the finish floor to the lowest projection from the ceiling.

Exceptions:

Basement Information – Code(s)

1. Beams and girders spaced not less than 4 feet (1219 mm) on center may project not more than 6 inches (152 mm) below the required ceiling height.
2. Ceilings in basements without habitable spaces may project to within 6 feet, 8 inches (2032 mm) of the finish floor; and beams, girders, ducts or other obstructions may project within 6 feet, 4 inches (1931 mm) 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 (2134 mm) in height with no portion of the required floor area less than 5 feet (1524 mm) in height

SECTION R306 SANITATION

R306.1 Toilet Facilities. Every dwelling unit shall be provided with a water closet, lavatory and a bathtub or shower.

R306.2 Kitchen. Each dwelling unit shall be provided with a kitchen area and every kitchen area shall be provided with a sink.

R306.3 Sewage Disposal. All plumbing fixtures shall be connected to a sanitary sewer or to an approved private sewage disposal system.

R306.4 Water Supply to Fixtures. All plumbing fixtures 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.

SECTION R307 TOILET, BATH & SHOWER SPACES

R307.1 Space Required. Fixtures shall be spaced as per figure R307.2

R307.2 Bathtub & Shower Spaces. Bathtub and shower floor and walls above bathtubs with installed shower heads and in shower compartments shall be finished with a non-absorbent surface. Such wall surfaces shall extend to a height of not less than 6 feet (1829 mm) above the floor.

SECTION R310 EMERGENCY ESCAPE & 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 opening for emergency escape and rescue. Where openings are provided as a means of escape and rescue they shall still have a height of not more than 44 inches (1118 mm) above the floor. Where a door opening having a threshold below the adjacent ground elevation serves as an emergency escape and rescue opening 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

Basement Information – Code(s)

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 (0.465 M²).

R310.1.2. Minimum Opening Height. The minimum net clear opening shall be 24 inches (6100mm)

R310.1.3. Minimum Opening Width. The minimum net clear opening width shall be 20 inches (508 mm)

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 Wells. 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 (.84m²) with a minimum horizontal protection and width of 36 inches (914 mm)

Exception: The ladder or steps required by section R310.2.1 shall be permitted to encroach a maximum of 6 inches (152 mm) into the required dimensions of the window well.

R310.2.1 Ladder and Steps. Window wells with a vertical depth greater than 44 inches (1118mm) 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 (305 mm), shall project at least 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center vertically for the full height of the window well.

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, provided the minimum net clear opening required by Section 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.

Basement Information – Code(s)

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 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 openable from the side from which 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 (914 mm) 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 minimum dimensions.

R311.4 Hallways. The minimum width of a hallway shall be not less than 3 feet (914 mm).

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 R312 LANDINGS

R312.1 General. Landings for stairways shall comply with this section.

R312.1.1. Landings for Stairways. There shall be a floor or landing at the top and bottom of each stairway.

R 408.30571

R312.1.2. Landings at Doors. There shall be a floor or landing on each side of each exterior door.

Exception: At the exterior of sliding doors.

R312.2 Size. The width of each landing shall not be less than the stairway or door served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel.

SECTION R314 STAIRWAYS

R314.1 Width. Stairways shall not be less than 36 inches (914 mm) 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 (114mm) 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 31.5 inches (787 mm) where a handrail is installed on one side and 27 inches (698 mm) where handrails are provided on both sides.

Basement Information – Code(s)

Exception: The width of spiral stairways shall be in accordance with Section R314.5.

R314.2 Treads and Risers. The maximum riser height shall be 8.25 inches (210 mm) and the minimum tread depth shall be 9 inches (229 mm). The riser height shall be measured vertically between leading edges of the adjacent treads. 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 treads leading edge. The walking surface of treads and landings of a stairway shall be sloped no steeper than 1 unit vertical in 48 units horizontal (2% slope). The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 of an inch (9.5 mm).

R 408.30519

R314.2.1. Profile. The radius of curvature at the leading edge of the tread shall be no greater than 9/16 inch (14.3 mm). A nosing not less than 3/4 inch (191.1mm) but not more than 1 1/4 inches (32 mm) shall be provided on stairways with solid risers. The greatest nosing projection shall not exceed the smallest nosing projection by more than 3/8 inch (9.5mm) between two stories, including the nosing at the level of floors and landings. Beveling of nosing shall not exceed 1/2 inch (12.7 mm). Risers shall be vertical or sloped from the underside of the leading edge of the tread above at an angle no more than 30 degrees from the vertical. Open risers are permitted, provided that the opening between treads does not permit the passage of a 4-inch-diameter (102 mm) sphere.

Exceptions:

1. A nosing is not required where the tread depth is a minimum of 11 inches (279 mm)
2. The opening between adjacent treads is not limited on stairs with a total rise of 30 inches (762 mm) or less.

SECTION R323 PROTECTION AGAINST DECAY

R323.1 Location Required. In areas subject to decay damage as established by figure R301.2(7), the following locations shall require the use of an approved species and grade of lumber, pressure preservatively treated in accordance with AWPA C1, C2, C3, C4, C9, C15, C18, C22, C23, C28, P1, P2 and P3, or decay-resistant heartwood of redwood, black locust or cedars.

1. Wood joists or the bottom of a wood structural floor when closer than 18 inches (457 mm) or wood girders when closer than 12 inches (305 mm) to exposed ground in crawl spaces unexcavated area located within the periphery of the building foundation.
2. All sill or plates that rest on concrete of masonry exterior walls and are less than 8 inches (203 mm) from exposed ground.
3. Sills and sleepers on a concrete or masonry exterior that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier.
4. The ends of wood girders entering exterior masonry or concrete walls having clearances of less than 0.5 inch (12.7 mm) on tops, sides and ends.

Basement Information – Code(s)

5. Wood siding, sheathing and wall framing on the exterior of a building having a clearance of less than 6 inches (152 mm) from the ground.
6. Wood structural members supporting moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier.
7. Wood furring strips or other wood framing members attached directly to the interior of exterior masonry walls or concrete below grade except where an approved vapor retarder is applied between the wall and the furring strips or framing members.

R323.1.1 Ground Contact. All wood in contact with the ground and that supports permanent structures intended for human occupancy shall be approved pressure preservatively treated wood suitable for ground contact use, except untreated wood may be used where entirely below groundwater level or continuously submerged in fresh water.

R323.1.2. Geographical Areas. In geographical areas where experience has demonstrated a specific need, approved naturally durable or pressure preservatively treated wood shall be used for those portions of wood members that form the structural supports of buildings, balconies, porches or similar permanent building appurtenances when such members are exposed to the weather without adequate protection from a roof, eave, overhang or other covering that would prevent moisture or water accumulation on the surface or at joints between members. Depending on local experience, such members may include:

1. Horizontal members such as girders, joists and decking.
2. Vertical members such as posts, poles and columns.

R323.1.3. Posts, Poles and Columns. Posts, poles and columns supporting permanent structures that are embedded in concrete in direct contact with the ground or embedded in concrete exposed to the weather shall be approved pressure preservatively treated wood suitable for ground contact use.

R323.1.4. Wood Columns. Wood columns shall be approved wood of natural decay or approved pressure preservatively treated wood.

Exceptions: Posts or columns supported by piers or metal pedestals projecting 1 inch (25.4 mm) above the floor or finish grade and are separated therefrom by an approved impervious moisture barrier.

R323.2 Quality Mark. Lumber and plywood required to be pressure preservatively treated in accordance with Section R323.1 shall bear the quality mark of an approved inspection agency that maintains continuing supervision, testing and inspection over the quality of the product and that has been approved by an accreditation body that complies with the requirements of the American Lumber Standard Committee treated wood program.

R323.2.1 Required Information. The required quality mark on each piece of pressure preservatively treated lumber or plywood shall contain the following information:

1. Identification of the treating plant.
2. Type of preservative.
3. The minimum preservative retention.

Basement Information – Code(s)

4. End use for which the product was treated.
5. Standard to which the product was treated.
6. Identity of the approved inspection agency.
7. The designation “Dry,” if applicable.

Exception: quality marks on lumber less than 1 inch (25.4 mm) nominal thickness, or lumber less than nominal 1 inch by 5 inches (51 mm by 102 mm) or lumber 36 inches (914 mm) or less in length shall be applied by stamping the faces of exterior pieces or by end labeling not less than 25 percent of the pieces of a bundled unit.

R323.3 Fasteners. Fasteners for pressure preservative and fire retardant-treated wood shall be of hot-dipped galvanized steel, stainless steel, silicon bronze or copper.

Exception: One half inch (12.7 mm) diameter or greater steel bolts.

SECTION R324 PROTECTION AGAINST TERMITES

R324.1 Subterranean Termite Control. In areas favorable to termite damage as established by Table R301.2(1), methods of protection shall be chemical soil treatment, pressure preservative treated wood in accordance with the AWPA standards listed in Section R323.1, naturally termite-resistant wood or physical barriers (such as metal or plastic termite shields), or any combination of these methods.

R602.7 Headers. For header spans, see Tables R502.5 (1) and R502.5(2).

R602.7.1 Wood Structural Panel Box Headers. Wood structural panel box headers shall be constructed in accordance with figure R602.7.2 and Table R602.7.2.

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 (51 mm by 102 mm) member may be used as a header in interior or exterior nonbearing walls for openings up to 8 feet (2438 mm) in width if the vertical distance to the parallel nailing surface above is not more than 24 inches (610 mm). For such non-bearing headers, no cripples or blocking are required above the header.

R602.8 Fireblocking Required. Fireblocking shall be provided to cut off all concealed draft openings (both vertical and horizontal) and to form an effective fire barrier between stories, and between a top story and the roof space. Fireblocking shall be provided in wood-frame construction in the following locations:

1. In concealed spaces of stud walls and partitions, including furred spaces, at the ceiling and floor level and at 10 foot (3048 mm) intervals both vertical and horizontal. Batts of blankets of mineral glass fiber or other approved nongrid materials shall be allowed as fireblocking in walls constructed using parallel rows of studs or staggered studs.
2. At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings.

Basement Information – Code(s)

3. In concealed spaces between stair stringers at the top and bottom of the run. Enclosed spaces under stairs shall comply with Section R314.8.
4. At openings around vents, pipes and ducts at ceiling and floor level, with an approved material to resist the free passage of flame and products of combustion.
5. For the fireblocking of chimneys and fireplaces, see Section R1001.16.
6. Fireblocking of cornices of a two-family dwelling is required at the line of dwelling unit separation.

R602.8.8.1. Materials. Except as provided in Section R602.8, Item 4, fireblocking shall consist of 2-inch (51 mm) nominal lumber, or two thicknesses of 1-inch (25.4) nominal lumber with broken lap joints, or one thickness of 23/32-inch (19.8 mm) wood structural panels with joints backed by 22/32-inch (19.8 mm) wood structural panels or one thickness of 3/4-inch (19.1 mm) particleboard with joints backed by 3/4-inch (19.1 mm) particleboard, 1/2-inch (12.7 mm) gypsum board, or 1/4-inch (6.4 mm) cement-based millboard. 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. Loose-fill insulation material shall not be used as a fireblock 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.

R602.8.1.1 Unfaced Fiberglass. Unfaced fiberglass batt insulation used as fireblocking shall fill the entire cross section of the wall cavity to a minimum height of 16 inches (406 mm) measured vertically. When piping, conduit or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction.

R602.8.1.2 Fireblocking Integrity. The integrity of all fireblocks shall be maintained.

R602.9 Cripple Walls. Foundation cripple walls shall be framed of studs not less in size than the studding above. When exceeding 4 feet (1219 mm) in height, such walls shall be framed of studs having the size required for an additional story.

Cripple walls with a stud height less than 14 inches (356 mm) shall be sheathed on at least one side with a wood structural panel of that is fastened to both the top and bottom plates in accordance with Table R602.3(1), or the cripple walls shall be constructed of solid blocking. Cripple walls shall be supported on continuous foundations.

R602.10 Wall Bracing. Walls shall be braced in accordance with this section. For buildings in Seismic Design Categories D1 and D2, walls shall be constructed in accordance with the additional requirements of Section R602.10.9, R602.10.11 and R602.11.

R602.10.1 Braced Wall Lines. Braced wall lines shall consist of braced wall panel construction methods in accordance with Section R602.10.3. The amount and location of bracing shall be in accordance with Table R602.10.1 and the amount of bracing shall be the greater of that required by the Seismic Design Category of the design wind speed. Braced wall panels shall begin no more than 12.5 feet (3810 mm) from each end of a braced wall line. Braced wall panels that are counted as part of a braced wall line shall be in line, except that-

Basement Information – Code(s)

offsets out-of-plane of up to 4 feet (1219 mm) shall be permitted provided that the total out-to-out offset dimension in any braced wall line is not more than 8 feet (2438 mm).

A designed collector shall be provided if the bracing begins more than 12 feet (3658 mm) from each end of a braced wall line.

R602.10.2 Cripple Wall Bracing. Cripple walls shall be braced with an amount and type of bracing as required for the wall above in accordance with Table R602.10.1 with the following modifications for the cripple wall bracing:

1. The percent bracing amount as determined from the Table R602.10.3 shall be increased by 15 percent.
2. The wall panel spacing shall be decreased to 18 feet (5486 mm) instead of 25 feet (7620 mm).

R602.10.3 Braced Wall Panel Construction Methods. The construction of braced wall panels shall be in accordance with one of the following methods:

1. Nominal 1-inch-by-4-inch (25.4 mm by 102 mm) continuous diagonal braces let in to the top and bottom plates and the intervening studs and approved metal strap devices installed in accordance with the manufacturer's specifications. The let-in bracing shall be placed at an angle not more than 60 degrees (1.06 rad) or less than 45 degrees (0.79 rad) from the horizontal.
2. Wood boards of 5/8 inch (15.9 mm) net minimum thickness applied diagonally on studs spaced a maximum of 24 inches (610 mm). Diagonal boards shall be attached to studs in accordance with Table R602.3(1).
3. Wood Structural panel sheathing with a thickness not less than 5/16 inch (7.9mm) for 16 inch (406 mm) stud spacing and not less than 3/8 inch (9.5 mm) for 24 inch (610 mm) stud spacing. Wood structural panels shall be installed in accordance with Table R602.3(3).
4. One-half-inch (12.7 mm) or 25/32-inch (19.8 mm) thick structural fiberboard sheathing applied vertically on studs spaced a maximum of 16 inches (406 mm) on center. Structural fiberboard sheathing shall be installed in accordance with Table R602.3(1).
5. Gypsum board with minimum 1/2-inch (12.7 mm) thickness placed on studs spaced a maximum of 24 inches (610 mm) on center and fastened at 7 inches (178 mm) on center with nails in accordance with Table R602.3(1).
6. Particleboard wall sheathing panels installed in accordance with Table R602.3(4).

R314.3 Headroom. The minimum headroom in all parts of the stairway shall not be less than 6 feet, 8 inches (2032 mm) measured vertically from the sloped plane adjoining the tread nosing of form the floor surface of the landing or platform.

Basement Information – Code(s)

R314.4 Winders. Winders are permitted, provided that the width of the tread at a point not more than 12 inches from the side where the treads are narrower is not less than 10 inches (254 mm) and the minimum width of any tread is not less than 6 inches (152 mm). The continuous handrail required by Section R315.1 shall be located on the side where the tread is narrower.

R314.5 Spiral Stairs. Spiral stairways are permitted, provided the minimum width shall be 26 inches (660 mm) with each tread having a 7 ½ inch (190 mm) minimum tread width at 12 inches (305 mm) from the narrow edge. All treads shall be identical, and the rise shall be no more than 9 ½ inches (241 mm). A minimum headroom of 6 feet, 6 inches (1982 mm) shall be provided.

R314.6 Circular Stairways. Circular stairways shall have a tread depth at a point not more than 12 inches (305 mm) from the side where the treads are narrower of not less than 11 inches (279 mm) and the minimum depth of any tread shall not be less than 6 inches (152 mm). Tread depth at any walking line, measured a consistent distance from the right side of the stairway, shall be uniform as specified in section R314.2.

R314.7 Illumination. All stairs shall be provided with illumination in accordance with section R303.4.

R314.8.1 Under Stair Protection. Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with ½-inch (12.7 mm) gypsum board.

R314.9 Bulkhead Enclosure Stairways. Stairways serving bulkhead enclosures not part of the required building egress and providing access from the outside grade level to the basement shall be exempt from the requirements of Section R312, R314 and R315 when the maximum from the basement finished floor level to grade adjacent to the stairway is covered by a bulkhead enclosure with hinged doors or other approved means.

SECTION R315 HANDRAILS

R315.1 Handrails. Handrails that have minimum and maximum heights of 34 inches and 38 inches (864 mm and 965 mm), respectively, measured vertically from the nosing of the treads, shall be provided on at least 1 side of stairways. All required handrails shall be continuous the full length of the stairs with 3 or more risers from a point directly above the top riser of a flight to appoint 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 (38mm) 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.

Basement Information – Code(s)

R315.2 Handrail Grip Size. The handgrip portion of handrails shall have a circular cross section of 1 ¼ inches (32 mm) minimum to 2 5/8 inches (67 mm) maximum. Other handrail shapes that provide an equivalent grasping surface are permissible. Edges shall have minimum radius of 1/8 inch (3.2 mm)

SECTION R316 GUARDS

R316.1 Guards Required. Porches, balconies or raised floor surfaces located more than 30 inches (762 mm) above the floor grade or below shall have guards not less than 36 inches (914 mm) in height. Open sides of stairs with a total rise of more than 30 inches (762 mm) above the floor or grade below shall have guards not less than 34 inches (864 mm) 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 (102 mm) in diameter. Required guard 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 stairway are permitted to be of such size that a sphere 6 inches (152 mm) 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 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 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.