

2018 (3rd) IRC NOTES

FIRE RESISTANT CONSTRUCTION

302.1 EXTERIOR WALLS: Construction of exterior walls parallel to lot line of dwellings and accessory buildings less than 5 feet from lot line (less than 3 feet with fire sprinklers) shall be minimum 1 hour fire-resistance rating; projections within 2 to 5 feet from lot line (2 to 3 feet with fire sprinklers) shall have minimum 1 hour fire-resistance rating on underside; maximum 25% of wall area with openings within 3 to 5 feet from lot line (unlimited openings within 3 to 5 feet with fire sprinklers); penetrations less than 3 feet from lot line shall be approved fire-resistance rated assembly.

302.5 DWELLING-GARAGE OPENING AND PENETRATION PROTECTION: Openings between garage and residence shall be equipped with solid wood doors not less than 1-3/8 inches in thickness, solid or honeycomb-core steel doors not less than 1-3/8 inches thick, or 20 minute fire-rated doors, equipped with a self-closing or automatic closing device. Ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of minimum 26 gage sheet steel and shall not have openings into the garage.

302.6 DWELLING-GARAGE FIRE SEPARATION: Garage separation from residence and attics or structures supporting floor/ceiling assemblies used for separation with 1/2 inch gypsum board applied to garage side. Garage separation from habitable rooms above garage with 5/8 inch Type X gypsum board applied to garage side.

302.7 UNDER STAIR PROTECTION: Enclosed space under stairs that is accessed by a door or access panel shall have walls, under-stair surface and any soffits protected on the enclosed side with 1/2 inch gypsum board.

302.8 FOAM PLASTICS: Foam plastic or foam plastic cores shall have a flame spread index of not more than 75 and shall have a smoke-developed index of not more than 450 when tested in the maximum thickness and density intended for use in accordance with ASTM E84 or UL 723. Loose-fill type foam plastic insulation shall be tested as board stock for the flame spread index and smoke-developed index. Foam plastic shall be separated from the interior of a building by 1/2 inch gypsum wallboard, 23/32 inch wood structural panel, 15/32 inch tongue-and-groove wood planks or wood structural sheathing, 1 inch masonry or concrete or a material that is tested and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275. Foam plastics in attics shall be protected against ignition using 1-1/2 inch mineral fiber or cellulose insulation, 1/4 inch wood structural panels, or 3/8 inch particleboard or gypsum board. Foam plastics in crawl spaces shall be protected against ignition using 1-1/2 inch mineral fiber insulation, 1/4 inch wood structural panels or hardboard or fiber-cement panel board, or 3/8 inch particleboard or gypsum board. Foam plastics used as interior finishes shall shall be specifically approved on NFPA 286 test with the acceptance criteria of FM 4880, UL 1040 or UL 1715, or fire tests related to actual end-use configurations. Foam plastics spray applied to sill plates and headers or installed in the perimeter joist space shall be not more than 3-1/4 inches thick, 0.5 to 2.0 pounds per cubic foot density, flame spread index of 25 or less and smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723.

302.9 FLAME SPREAD INDEX AND SMOKE-DEVELOPED INDEX FOR WALL AND CEILING FINISHES: Wall and ceiling finishes shall have a flame spread index of not greater than 200, except for trim defined as picture molds, chair rails, baseboards and handrails; to doors and windows or their frames; or to materials that are less than 1/28 inch in thickness cemented to the surface of walls or ceilings. Wall and ceiling finishes shall have a smoke-developed index of not greater than 450 in accordance with ASTM E84 or UL 723.

302.10 FLAME SPREAD INDEX AND SMOKE-DEVELOPED INDEX FOR INSULATION: Insulating materials installed within floor-ceiling assemblies, roof-ceiling assemblies, wall assemblies, crawl spaces and attics shall have a flame spread index of not to exceed 25 and a smoke-developed index not to exceed 450 in accordance with ASTM E84 or UL 723. Exposed insulation materials installed on attic floors shall have a critical radiant flux of not less than 0.12 watt per square centimeter in accordance with ASTM E970.

302.11 FIREBLOCKING: Fireblocking shall be provided to cut off vertical and horizontal concealed draft openings and to form a fire barrier between stories and between top story and roof space. Provide in concealed spaces of stud walls and partitions including furred spaces and parallel rows of studs or staggered studs as follows: vertically at ceiling and floor levels, horizontally at intervals not exceeding 10 feet; at interconnections between concealed vertical and horizontal spaces at soffits, drop ceilings and cove ceilings; in concealed spaces between stair stringers at top and bottom of run; at openings around vents, pipes, ducts, cables and wires at ceiling and floor levels with approved material to resist passage of flame and products of combustion; and fireblocking chimneys and fireplaces. Fireblocking shall be 2 inch nominal lumber, tow thicknesses of 1 inch nominal lumber with broken lap joints, 23/32 inch wood structural panels with joints backed by 23/32 inch wood structural panels, 3/4 inch particleboard with joints backed by 3/4 inch particleboard, 1/2 inch gypsum board, 1/4 inch cement-based millboard, batts or blankets of mineral wool or glass fiber securely retained in place, or cellulose insulation in accordance with ASTM E119 or UL263. Unfaced fiberglass batt insulation shall fill the entire cross section of the wall cavity to a height of not less than 16 inches. Where piping, conduit or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction. Loose-fill insulation shall not be used as fireblock.

302.12 DRAFTSTOPPING: In combustible construction with usable space above and below concealed space of floor-ceiling assembly, draftstops shall be installed so area of concealed space does not exceed 1,000 square feet, dividing space into equal areas. Where assembly is enclosed by floor membrane above and ceiling membrane below, draftstopping shall be provided in floor-ceiling assemblies where ceiling is suspended under floor framing, or floor framing is constructed of truss-type open web or perforated members. Draftstopping shall be 1/2 inch gypsum board, 3/8 inch wood structural panels or other approved materials. Draftstopping shall be installed parallel to floor framing members.

302.13 FIRE PROTECTION OF FLOORS: Floor assemblies to be fire-resistance rated, provided with 1/2 inch gypsum wallboard membrane, 5/8 inch wood structural panel membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar penetrations shall be permitted. Floor assemblies above fire sprinklers, above a crawl space not intended for storage of heating appliances, that do not exceed 80 square feet, with perimeter fireblocking separating from protected floor assemblies, or wood floor assemblies equal or greater than 2x10 inch nominal dimension shall be exempt from fire protection.

302.14 COMBUSTIBLE INSULATION CLEARANCE: Combustible insulation shall be separated not less than 3 inches from recessed luminaires, fan motors and other heat-producing devices, except where devices are listed for lesser clearances with combustible insulation complying, meeting requirements of Section N1102.4.5.

LIGHT, VENTILATION AND HEATING

303.1 HABITABLE ROOMS: Habitable rooms shall have aggregate glazing area of a minimum 8% of floor area, except when artificial light provides average illumination of 6 footcandles over area of room 30 inches off floor. Natural ventilation shall be through windows, skylights, doors, louvers or other approved openings to outdoor air, with ready access controllable by occupants. Openable area shall be a minimum 4% of floor area ventilated, except when equipped with whole-house mechanical ventilation system. Sunroom and patio covers are permitted for glazed openings and natural ventilation when minimum 40% of exterior sunroom walls are open or insect screening and a minimum 7 feet ceiling height in sunroom. Adjoining rooms have minimum 50% unobstructed opening in common wall, with minimum opening 10% of floor area of interior room and minimum 25 square feet, minimum 20 square feet into a sunroom or patio cover.

303.3 BATHROOMS: Bathrooms and water closets shall have aggregate glazing area of a minimum 3 square feet, 50% shall be openable, except when artificial light and exhaust system exhausts air directly to the outdoors.

303.4 MECHANICAL VENTILATION: Where air infiltration rate is a maximum 5 air changes per hour tested with a blower door at a pressure of 0.2 inch w.c. (50 Pa), there shall be whole-house mechanical ventilation in accordance with Section M1505.4. Outdoor air intake openings shall be located minimum 10 feet from hazardous or noxious contaminant, such as vents, chimneys, plumbing vents, streets, alleys, parking lots or loading docks. Exhaust air openings shall not be directed onto walkways. Air intake and exhaust openings shall be protected with corrosion-resistant screens, louvers or grills with openings between 1/4 inch to 1/2 inch.

303.7 INTERIOR STAIRWAY ILLUMINATION: Interior stairways shall have an artificial light source illuminating landings and treads, at minimum 1 foot-candle measured at center of treads and landings, with wall switch at each floor level when stairway has minimum 6 risers. Switch is not required with remote or automatic control.

303.8 EXTERIOR STAIRWAY ILLUMINATION: Exterior stairways shall have an artificial light source located at top landing and at bottom landing when accessing basement from outdoor grade level.

303.10 REQUIRED HEATING: Heating facilities shall be provided maintaining a minimum room temperature of 68 degrees fahrenheit at 3 feet above floor and 2 feet from exterior walls in habitable rooms. Portable space heaters are not permitted to achieve compliance.

MINIMUM ROOM AREAS

304.1 MINIMUM AREA: Habitable rooms shall be a minimum 70 square feet, except kitchens.

304.2 MINIMUM DIMENSIONS: Habitable rooms shall be a minimum 7 feet in any horizontal dimension, except kitchens.

304.3 HEIGHT EFFECT ON ROOM AREA: Portions of a room with a sloping ceiling measuring less than 5 feet or a furred ceiling measuring less than 7 feet from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required habitable area for that room.

CEILING HEIGHT

305.1 MINIMUM HEIGHT: Habitable rooms, hallways and portions of basements containing these spaces shall have a minimum 7 feet ceiling height. Bathrooms, toilet rooms and laundry rooms shall have a minimum 6 feet 8 inches ceiling height, except sloped ceiling rooms with required floor area of room of minimum 5 feet ceiling height and minimum 50% of required floor area of minimum 7 feet ceiling height. Ceiling height above bathroom and toilet fixtures shall provide for intended purpose. Showers shall have a minimum 6 feet 8 inches ceiling height above 30 inches by 30 inches area at the showerhead. Portions of basements that do not contain habitable space or hallways shall have a minimum 6 feet 8 inches ceiling height. Beams, girders, ducts or other obstructions in basements are permitted to project at minimum 6 feet 4 inches above finish floor.

SANITATION

306.1 TOILET FACILITIES: Shall provide a minimum one water closet, lavatory and bathtub or shower.

306.2 KITCHEN: Shall provide a kitchen area with a minimum one sink.

306.3 SEWAGE DISPOSAL: Plumbing fixtures shall be connected to a sanitary sewer or to an approved private sewage disposal system.

306.4 WATER SUPPLY TO FIXTURES: 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.

TOILET, BATH AND SHOWER SPACES

307.1 SPACE REQUIRED: Water closets shall be center a minimum 15 inches off side wall or cabinetry, with a minimum 21 inches clear space in front. Lavatories shall have a minimum 21 inches clear space in front. Showers shall be a minimum 30 inches by 30 inches in floor size, with a minimum 24 inches clear space in front of opening.

307.2 BATHTUB AND SHOWER SPACES: Bathtub and shower floors and walls above bathtubs with installed shower heads and in shower compartments shall be finished with a nonabsorbent surface. Such wall surfaces shall extend to a minimum height of 6 feet above the floor.

GLAZING

308.2 LOUVERED WINDOWS: Regular, float, wired or patterned glass in jalousies and louvered windows shall be minimum nominal 3/16 inch thick and maximum 48 inches in length. Exposed glass edges shall be smooth.

308.4 HAZARDOUS LOCATIONS: Glazing in fixed and operable panels of swinging, sliding and bifold doors are hazardous location, except glazed openings less than 3 inches or decorative glazing. Glazing in fixed or operable panel adjacent to a door are hazardous location, where bottom exposed edge of glazing is less than 60 inches above floor or walking surface and within 24 inches of the closed door or less than 180 degrees from plane of closed swinging door, except decorative glazing, when a permanent barrier between door and glazing, where door is to a closet or storage area maximum 3 feet deep, or glazing adjacent to fixed panel of patio doors. Glazing in fixed or operable panel is hazardous location when exposed area of individual pane is larger than 9 square feet, bottom edge of glazing is less than 18 inches above floor, top edge of glazing is more than 30 inches above floor, and a walking surface is within 36 inches measured horizontally, except decorative glazing, when a horizontal rail is adjacent 34 inches to 38 inches above walking surface and minimum 1-1/2 inch cross section with withstanding a minimum horizontal load of 50 pounds per linear foot, or insulating glass units and glazed panels where bottom edge is minimum 25 feet above walking surface adjacent to glass exterior. Glazing in guards and railings are hazardous location. Structural glass baluster panels shall have attached top rail or handrail supported by minimum three glass baluster panels, excepted laminated glass. Glazing in walls, enclosures or fences facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers, or swimming pools where bottom exposed edge is less than 60 inches above walking surface are hazardous location, except glazing more than 60 inches horizontally from water's edge of fixture. Glazing with bottom edge less than 36 inches above walking surface of stairways, landings between flights of stairs and ramps are hazardous locations, except when a horizontal rail is adjacent 34 inches to 38 inches above walking surface and minimum1-1/2 inch cross section with withstanding a minimum horizontal load of 50 pounds per linear foot or a minimum 36 inches measure horizontally from walking surface. Glazing adjacent to landing at bottom of stairway where glazing is less than 36 inches above landing and less than 60 inches horizontal arc less than 180 degrees from bottom tread nosing are hazardous location, except where glazing is protected by a guard more than 18 inches away.

308.6 SKYLIGHTS: Skylights, sloped glazing and tubular daylighting devices shall be laminated glass with a minimum 0.015 inch polyvinyl butyral interlayer for glass panes maximum16 square feet located less than 12 feet above walking surface (minimum 0.030 inch interlayer for larger sizes or higher locations), fully tempered glass, heat-strengthened glass, wired glass or approved rigid plastics. Fully tempered, heat-strengthened glass, or wired glass shall have a retaining screen installed below the glass. Greenhouse glazing is permitted without screening below the sloped glazing when greenhouse ridge is maximum 20 feet above grade. Screen and fastenings shall support twice weight of glazing, with mesh opening maximum of 1 inch by 1 inch. Skylights installed on roof with maximum pitch of 3 units vertical in 12 units horizontal shall be mounted on a curb extending a minimum 4 inches above roof, unless otherwise specified in manufacturer installation instructions.

GARAGES AND CARPORTS

309.1 FLOOR SURFACE: Garage and carport floor surfaces shall be approved noncombustible material, except asphalt surfaces shall be permitted in carports. Area for parking vehicles shall be sloped for liquids to drain or entry doorway. Carports shall be open on minimum two sides.

309.4 AUTOMATIC GARAGE DOOR OPENERS: Automatic garage door openers, if provided, shall be listed and labeled in accordance with UL 325.

309.5 FIRE SPRINKLERS: Garage sprinklers shall be residential sprinklers or quick-response sprinklers, designed to provide a density of 0.05 gpm/ft2. Garage doors shall not be considered obstructions with respect to sprinkler placement.

EMERGENCY ESCAPE AND RESCUE OPENINGS

310.1 EMERGENCY ESCAPE AND RESCUE OPENING REQUIRED: Basements, habitable attics and sleeping rooms shall have one operable emergency escape and rescue opening, opening directly into a public way or yard or court that opens to a public way, except mechanical basements a maximum 200 square feet or basement sleeping rooms with fire sprinklers and one means of egress and one emergency escape and rescue opening or two means of egress from basement.

310.1.1 OPERATIONAL CONSTRAINTS AND OPENING CONTROL DEVICES: Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, tools or special knowledge. Window opening control devices on windows serving as a required emergency escape and rescue opening shall comply with ASTM F2090.

310.2.1 MINIMUM OPENING AREA: Emergency escape and rescue openings shall have a net clear opening of minimum 5.7 square feet, net clear height of minimum 24 inches and net clear width of minimum 20 inches, except grade floor or below grade openings shall have a net clear opening of minimum 5 square feet.

310.2.2 WINDOW SILL HEIGHT: Where a window is provided as the emergency escape and rescue opening, it shall have a sill height of not more than 44 inches above the floor.

310.2.3 WINDOW WELLS: Window well horizontal areas shall be minimum 9 square feet with minimum horizontal dimensions 36 inches. Window wells with a vertical depth greater than 44 inches shall be equipped with a permanently affixed ladder or steps usable with the window in the fully open position. Ladders or rungs shall have an inside minimum width of 12 inches, shall project minimum 3 inches and maximum 6 inches from the wall and shall be spaced maximum 18 inches on center vertically for the full height of the window well. Window wells shall be designed for proper drainage by connecting to the building's foundation drainage system or by an approved alternative method, except when foundation is well-drained soil or sand-gravel mixture soils in accordance with United Soils Classification System, Group I Soils.

310.2.4 EMERGENCY ESCAPE AND RESCUE OPENINGS UNDER DECKS AND PORCHES: Emergency escape and rescue openings installed under decks and porches shall be fully openable and provide a minimum path of 36 inches in height to a yard or court.

310.2.5 REPLACEMENT WINDOWS:Replacement windows shall be exempt from the maximum sill height requirements provided window is manufacturer's largest standard size window that will fit within existing frame or rough opening, of the same operating style as existing or a style that provides greater opening area as existing.

310.3 EMERGENCY ESCAPE AND RESCUE DOORS: Emergency escape and rescue doors shall be a side-hinged door or a slider. Where the opening is below the adjacent grade, it shall be provided with an area well. Emergency escape and rescue doors shall have a net clear openingof minimum 5.7 square feet, net clear height of minimum 24 inches and net clear width of minimum 20 inches,except grade floor or below grade openings shall have a net clear opening of minimum 5 square feet.

310.3.2 AREA WELLS: Area well horizontal areas shall be minimum 9 square feet with minimum horizontal dimensions 36 inches. Area wells with a vertical depth greater than 44 inches shall be equipped with a permanently affixed ladder or steps usable with the door in the fully open position. Ladders or rungs shall have an inside minimum width of 12 inches, shall project minimum 3 inches and maximum 6 inches from the wall and shall be spaced maximum 18 inches on center vertically for the full height of the area well. Area wells shall be designed for proper drainage by connecting to the building's foundation drainage system or by an approved alternative method, except when foundation is well-drained soil or sand-gravel mixture soils in accordance with United Soils Classification System, Group I Soils.

310.3.4 BARS, GRILLES, COVERS AND SCREENS: Where bars, grilles, covers, screens or similar devices are placed over emergency escape and rescue openings, area wells, or window wells, the minimum net clear opening size shall comply and such devices shall be releasable or removable from the inside without the use of a key, tool, special knowledge or force greater than that required for the normal operation of the escape and rescue opening.

310.3.5 DWELLING ADDITIONS: Emergency escape and rescue opening shall be provided in new sleeping rooms of an addition including new basements, except new basements with a sleeping room with an emergency escape and rescue opening or new basement accesses existing basement with emergency escape and rescue opening.

310.3.6 ALTERATIONS OR REPAIRS OF EXISTING BASEMENTS: Emergency escape and rescue opening shall not be required where existing basements undergo alterations or repairs, except new sleeping rooms in existing basement shall have emergency escape and rescue openings.

MEANS OF EGRESS

311.1 MEANS OF EGRESS: Dwellings shall be provided with a means of egress that shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the dwelling to the required egress door without requiring travel through a garage. The required egress door shall open directly into a public way or to a yard or court that opens to a public way.

311.2 EGRESS DOOR: Minimum one side-hinged egress door with a clear width of minimum 32 inches where measured between the face of the door and the stop, with the door open 90 degrees. The clear height of the door opening shall be minimum 78 inches in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the dwelling without the use of a key or special knowledge or effort.

311.3 FLOORS AND LANDINGS AT EXTERIOR DOORS: Landing or floor on each side of exterior doors, width shall be not less than the door served, by a minimum of 36 inches measured in the direction of travel, and slope shall not exceed 1/4 unit vertical in 12 units horizontal, except exterior balconies less than 60 square feet and only accessed from a door are permitted to have a landing less than 36 inches measured in direction of travel. Landings or finished floors at egress door shall be maximum 1-1/2 inches lower than top of threshold, except landing or floor on exterior side shall be maximum 7-3/4 inches below top of threshold when door does not swing over the exterior landing or floor. Where exterior landings or floors serving the required egress door are not at grade, they shall be provided with access to grade by means of a ramp. Landings or finished floors at exterior doors shall be maximum 7-3/4 inches below top of threshold when door does notswing over the exterior landing or floor, except top landing is not required where a maximum two riser stairway is located on exterior side of door and door does not swing over stairway. Storm and screen doors shall be permitted to swing over exterior stairs and landings.

311.4 VERTICAL EGRESS: Egress from habitable levels including habitable attics and basements that are not provided with an egress door shall be by a ramp or a stairway.

311.6 HALLWAYS: The width of a hallway shall be minimum 36 inches.

311.7 STAIRWAYS: Stairways shall be minimum 36 inches clear width above handrail height and below headroom height. Clear width below handrail height shall be minimum 31-1/2 inches with hadrrail on one side and minimum 27 inches with handrails on both sides, except spiral stairways. Headroom shall be a minimum 6 feet 8 inches measured vertically from sloped line adjoining tread nosings or from floor surface of landing, except spiral stairs. Flight of stairs shall have maximum vertical rise of 12 feet 7 inches between floor levels or landings. The walkline across winder treads and landings shall be concentric to the turn and parallel to the direction of travel entering and exiting the turn. The walkline shall be located 12 inches from the inside of the turn, measured from the widest point of the clear stair width at the walking surface. Where winders are adjacent within a flight, the point of the widest clear stair width of the adjacent winders shall be used.

311.7.5 STAIR TREADS AND RISERS: Stair riser height shall be a maximum 7-3/4 inches, measured vertically between leading edges of the adjacent treads, except spiral stairways. Greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch. Open risers more than 30 inches above floor shall not permit passage of a 4 inch diameter sphere, except on spiral stairways. Stair tread depth shall be a minimum 10 inches, measured horizontally between vertical planes of foremost projection of adjacent treads and at right angle to tread's leading edge, except spiral stairways. Greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch. Winder treads depth shall be a minimum 10 inches, measured between vertical planes of foremost projection of adjacent treads at intersections with the walkline, with a minimum tread depth of 6 inches at any point within the clear width of the stair. Nosings at treads, landings and floors of stairways shall have a maximum radius of curvature of 9/16 inch or maximum bevel of 1/2 inch. Nosing projection between 3/4 inch and 1-1/4 inch shall be provided on stairways, except where the tread depth is minimum 11 inches. Greatest nosing projection not exceeding the smallest by more than 3/8 inch.

311.7.6 LANDINGS FOR STAIRWAYS: Stairways shall have a floor or landing at top and bottom of each flight, with width not less than width of stairs and a minimum 36 inch depth in direction of travel when a straight run, except at top of interior stairs where a door does not swing over the stairs. Treads and landings shall have a maximum slope of 1 inch vertical in 48 inches horizontal.

311.7.8 HANDRAILS: Stairs with more than 3 risers shall have a handrail on minimum of one side of stairs. Handrail height shall be between 34 inches and 38 inches, measured vertically from sloped plane adjoining the tread nosing or finish surface of ramp slope. Handrails shall not project more than 4-1/2 inches on either side of stairway, with a minimum 1-1/2 inches clearance between handrail and adjacent wall. Handrails shall be continuous for full length of stair flight, from directly above top riser to directly above bottom riser nosing, with termination into wall or newel post, except volutes, turnouts or easings at the lowest tread. Circular handrail diameters shall be between 1-1/4 inches to 2 inches. Non-circular handrail perimeters shall be between 4 inches and 6-1/4 inches, with maximum cross section of 2-1/4 inches. Handrails with perimeter greater than 6-1/4 inches shall have graspable finger recesss area both sides of profile, within 3/4 inch from top of profile, with minimum 5/16 inch depth and a minimum 1-3/4 inches below top of profile.

311.7.10 SPECIAL STAIRWAYS: Spiral stairways clear width at and below handrails a minimum 26 inches, with walkline radius maximum 24-1/2 inches, with minimum tread depth of 6-3/4 inches at walkline, with maximum riser height of 9-1/2 inches, and minimum headroom height of 6 feet 6 inches. Alternating tread devices and ship ladders shall not be used as a means of egress, except for lofts, mezzanines and similar areas with maximum 200 gross square feet and do not provide exclusive access to a kitchen or bathroom. Alternating tread devices and ship ladders shall have minimum tread depth of 5 inches, minimum tread width of 7 inches, maximum riser height of 9-1/2 inches, and handrail heights between 30 inches and 34 inches.

311.8 RAMPS: Egress ramps shall have maximum slope of 1 unit vertical in 12 units horizontal, except when site constraints make compliance infeasible ramps shall have maximum 1 unit vertical in 8 units horizontal. Non-egress ramps shall have maximum slope of 1 unit vertical in 12 units horizontal. Ramps to have floor or landing at top and bottom, minimum width of 36 inches. Handrails on minimum one side of ramps exceeding slope of 1 unit vertical in 12 units horizontal, height measured between 34 inches to 38 inches.

GUARDS AND WINDOW FALL PROTECTION

312.1 GUARDS: Guards shall be provided on open-sided walking surfaces more than 30 inches vertically above the floor or grade within 36 inches horizontally to open side edge, height measured a minimum 36 inches above walking surface, except stairs with a minimum 34 inches height. Openings in guards shall not permit passage of a 4 inch diameter sphere, except triangular openings formed by riser, tread and bottom of rail of guard that does not allow passage of a 6 inch diameter sphere.

312.2 WINDOW FALL PROTECTION: Operable window sills less than 24 inches above floor and greater than 72 inches above exterior grade or surface below shall not allow passage of a 4 inch diameter sphere or provide window fall prevention devices that comply with ASTM F2090, or provide window opening control devices that comply with ASTM F2090 without reducing minimum net clear opening area egress requirements.

AUTOMATIC FIRE SPRINKLER SYSTEMS

313.1 TOWNHOUSE, ONE AND TWO FAMILY DWELLINGS: Automatic residential fire sprinkler system shall be installed in accordance with Section P2904 or NFPA 13D, except for additions or alterations to existing buildings.

SMOKE ALARMS

314.1 GENERAL: Smoke alarms shall comply with NFPA 72, listed in accordance with UL 217. Combination smoke and carbon monoxide alarms shall be listed in accordance with UL 217 and UL 2034.

314.3 LOCATION: Smoke alarms shall be installed in each sleeping room, outside each sleeping area, and on each additional story including basements and habitable attics. Smoke alarms shall not be installed a minimum 3 feet horizontally from bathrooms with a bathtub or shower, a minimum 20 feet horizontally from any cooking appliance, a minimum 10 feet horizontal from any cooking appliance with an alarm silencing switch. Alarms shall be interconnected where actuation of one alarm activates all the alarms, with hard wired primary power and battery power backup, without a disconnecting switch. Fire alarm systems are permitted in lieu of smoke alarms.

CARBON MONOXIDE ALARMS

315.1 GENERAL: Carbon monoxide alarms shall comply with Section R315, listed in accordance with UL 2034.

315.2 LOCATION: Carbon monoxide alarms shall be provided in dwellings with fuel-fired appliance or with an attached garage. Carbon monoxide alarms shall be installed outside each sleeping area and within a bedroom with a fuel-burning appliance. Alarms shall be interconnected where actuation of one alarm activates all the alarms, with hard wired primary power andbattery power backup, without a disconnecting switch. Fire alarm systems are permitted in lieu of carbon monoxide alarms

PROTECTION OF WOOD AGAINST DECAY

317.1 LOCATION REQUIRED: Naturally durable wood or preservative treated wood in accordance with AWPAC 1 shall be installed in floor joists less than 18 inches of exposed ground; girders less than 12 inches of exposed ground; framing members on concrete or masonry exterior foundation walls and less than 8 inches of exposed ground; sills and sleepers on concrete or masonry slab in contact with exposed ground without moisture barrier; girders entering exterior concrete or masonry walls; siding, sheathing or framing less than 6 inches of exterior ground or less than 2 inches vertically from concrete steps, slabs exposed to weather; structural members supporting concrete or masonry slabs without moisture barrier; furring strips attached to concrete or masonry walls below grade without vapor retarder; columns exposed to weather or in basements atop concrete piers or metal pedestals within 1 inch of concrete floor; glue laminated timbers exposed to weather without cover of a roof or eave; and all wood supporting occupied structures in contact with exposed ground or embedded in concrete in contact with exposed ground or exposed weather. Field cut ends, notches and drilled holes of preservative treated wood shall be treated in accordance with AWPAC M4. Fasteners shall be hot dipped, zinc coated galvanized steel, stainless steel, silicon bronze or copper, except steel bolts over 1/2 inch diameter.

PROTECTION AGAINST SUBTERRANEAN TERMITES

318.1 CONTROL METHODS: Protection against subterranean termites shall be with chemical termiticide treatment of soil or wood, termite baiting system, pressure preservative treated wood, naturally durable termite resistant wood, metal or plastic sheeting or collars as physical barriers, shields atop exterior foundation wall used in combination with another protection method, or cold formed steel framing.

ELEVATORS AND PLATFORM LIFTS

321.1 COMPLIANCE: Private residence elevators shall comply with ASME A17.1/CSA B44, platform lifts shall comply with ASME A18.1.

SOLAR ENERGY SYSTEMS

324.2 SOLAR THERMAL SYSTEMS: Solar thermal systems shall comply with Chapter 23 and International Fire Code.

324.3 PHOTOVOLTAIC SYSTEMS: Photovoltaic systems shall comply with Sections R324 and NFPA 70. Panels and modules shall comply with UL 1703, inverters shall comply with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction.

324.4 ROOFTOP MOUNTED: Roof structures loads shall be dead load including panel weight plus snow load, to resist component and cladding wind loads. Panel systems same fire classification as roof assembly. Roof penetrations flashed and sealed in accordance with Chapter 9. Panels shall have a minimum of 2 access pathways, each a minimum 36 inches wide. Photovoltaic shingles shall comply with SectionR905.16.

STATIONARY STORAGE BATTERY SYSTEMS

327.1 GENERAL: Stationary storage battery systems to be listed for residential use, complying with UL 9540, except repurposed battery systems from electric vehicles installed outdoors a minimum 5 feet from exterior walls, property lines and public ways or electric vehicle battery systems that comply with Section 625 of NFPA 70.



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