

PART 2

International Residential Code

Chapters 3, 5, 6, 16, 25 and 39

- Chapter 3 Building Planning
- Chapter 5 Floors
- Chapter 6 Wall Construction
- Chapter 16 Duct Systems
- Chapter 25 Plumbing Administration
- Chapter 39 Power and Lighting Distribution

The *International Residential Code*® (IRC®) contains provisions for residential one- and two-family dwellings not more than 3 stories in height. It contains building planning, framing, mechanical, plumbing, fuel gas and electrical provisions for the design, construction and administration of residential one- and two-family dwellings. Chapter 3 is a compilation of the code requirements specific to the building planning sector of the design and construction process. Among many other provisions, this chapter sets forth life-safety requirements dealing with fire-resistant construction, flood-resistant construction, and specifications on stairways and use of guards at elevated surfaces.

Chapter 5 includes provisions for both conventional wood and cold-formed steel floor construction and Chapter 6 contains provisions that regulate the design and construction of walls. Chapter 16 deals with the structural integrity of ducts for supply, return and exhaust air systems, and the overall impact of such systems on the fire-safety performance of the building.

The plumbing administration provisions of Chapter 25 address how to apply the plumbing requirements of the IRC to specific types or phases of construction, as well as the responsibilities of the applicant, installer and inspector with regard to testing plumbing installations. The required distribution and spacing of receptacle outlets and lighting outlets is prescribed in Chapter 39. ■



IRC R302.5.1

Opening Protection

IRC R322.2.1, IRC R322.3.2

Elevation Requirements

IRC R325.5

Openness

IRC TABLE R507.5

Deck Beam Span Lengths

IRC R602.3.1

Stud Size, Height and Spacing

IRC TABLE R602.7.5

Minimum Number of Full Height Studs at Each End of Headers in Exterior Walls

IRC M1601.4.1

Joints, Seams and Connections

IRC M1602.2

Return Air Openings

IRC P2503.5.1

Rough Plumbing

IRC E3901.7

Outdoor Outlets

IRC E3901.11

Foyers

IRC R302.5.1

Opening Protection

CHANGE TYPE: Deletion

CHANGE SUMMARY: Section R302 addresses fire-resistant construction, while Subsection R302.5 focuses on the dwelling-garage opening and penetration protection. Deletion of the 2015 language for Section R302.5.1 means that the 2009 language remains in effect.

2015 CODE: ~~**R302.5.1 Opening protection.** Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than $1\frac{3}{8}$ inches (35 mm) in thickness, solid or honeycomb core steel doors not less than $1\frac{3}{8}$ inches (35 mm) thick, or 20-minute fire-rated doors, equipped with a self-closing device.~~

2015 CODE REVISED (2009 Language): **R302.5.1 Opening protection.** Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than $1\frac{3}{8}$ inches (35 mm) in thickness, solid or honeycomb core steel doors not less than $1\frac{3}{8}$ inches (35 mm) thick, or 20-minute fire-rated doors.

CHANGE SIGNIFICANCE: The 2009 language is maintained, resulting in doors separating the garage and the residence not being required to be equipped with a self-closing device. When the door fails to close and latch securely, the resulting void can be as dangerous as having no door at all.



FIGURE 2-1 Door from garage to dwelling does not need self-closing device

CHANGE TYPE: Deletion

CHANGE SUMMARY: Section R322 contains the provisions for flood-resistant construction, with specific requirements for flood hazard areas identified in Section R322.2, and for coastal high-hazard areas in Section R322.3. Deletion of the 2015 language for Sections R322.2.1 and R322.3.2 means that the 2009 language remains in effect.

IRC R322.2.1

IRC R322.3.2

Elevation Requirements

2015 CODE: R322.2.1 Elevation requirements.

1. ~~Buildings and structures in flood hazard areas, including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or the design flood elevation.~~
2. ~~In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated to a height of not less than the highest adjacent grade as the depth number specified in feet (mm) on the FIRM plus 1 foot (305 mm), or not less than 3 feet (15 mm) if a depth number is not specified.~~
3. ~~Basement floors that are below grade on all sides shall be elevated to or above base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.~~

Exception: ~~Enclosed areas below the design flood elevation, including basements with floors that are not below grade on all sides, shall meet the requirements of Section R322.2.2.~~

R322.3.2 Elevation requirements.

1. ~~Buildings and structures erected within coastal highhazard areas and Coastal A Zones, shall be elevated so that the bottom of the lowest portion of horizontal structural members supporting the lowest floor, with the exception of piling, pile caps, columns, grade beams and bracing, is elevated to or above the base flood elevation plus 1 foot (305 mm) or the design flood elevation, whichever is higher.~~
2. ~~Basement floors that are below grade on all sides are prohibited.~~
3. ~~The use of fill for structural support is prohibited.~~
4. ~~Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.~~
5. ~~Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R322.3.4 and R322.3.5.~~

2015 CODE Revised (2009 Language): R322.2.1 Elevation requirements.

1. Buildings and structures in flood hazard areas not designated as Coastal A Zones shall have the lowest floors elevated to or above the design flood elevation.

2. Buildings and structures in flood hazard areas designated as Coastal A Zones shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or to the design flood elevation, whichever is higher.
3. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including *basement*) elevated at least as high above the highest adjacent *grade* as the depth number specified in feet on the FIRM, or at least 2 feet (610 mm) if a depth number is not specified.
4. Basement floors that are below *grade* on all sides shall be elevated to or above the design flood elevation.

Exception: Enclosed areas below the design flood elevation, including *basements* whose floors that are not below *grade* on all sides, shall meet the requirements of Section R322.2.2.

R322.3.2 Elevation requirements.

1. All buildings and structures erected within coastal high hazard areas shall be elevated so that the lowest portion of all structural members supporting the lowest floor, with the exception of mat or raft foundations, piling, pile caps, columns, grade beams and bracing, is:
 - 1.1. Located at or above the design flood elevation, if the lowest horizontal structural member is oriented parallel to the direction of wave approach, where parallel shall mean less than or equal to 20 degrees (0.35 rad) from the direction of approach, or
 - 1.2. Located at the base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher, if the lowest horizontal structural member is oriented perpendicular to the direction of wave approach, where perpendicular shall mean greater than 20 degrees (0.35 rad) from the direction of approach.
2. Basement floors that are below *grade* on all sides are prohibited.
3. The use of fill for structural support is prohibited.
4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.

Exception: Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R322.3.4 and R322.3.5.

CHANGE SIGNIFICANCE: Municipalities in Pennsylvania determine the minimum required freeboard they deem necessary when adopting their floodplain ordinances; therefore, the required freeboard should be determined by the local municipal ordinance.

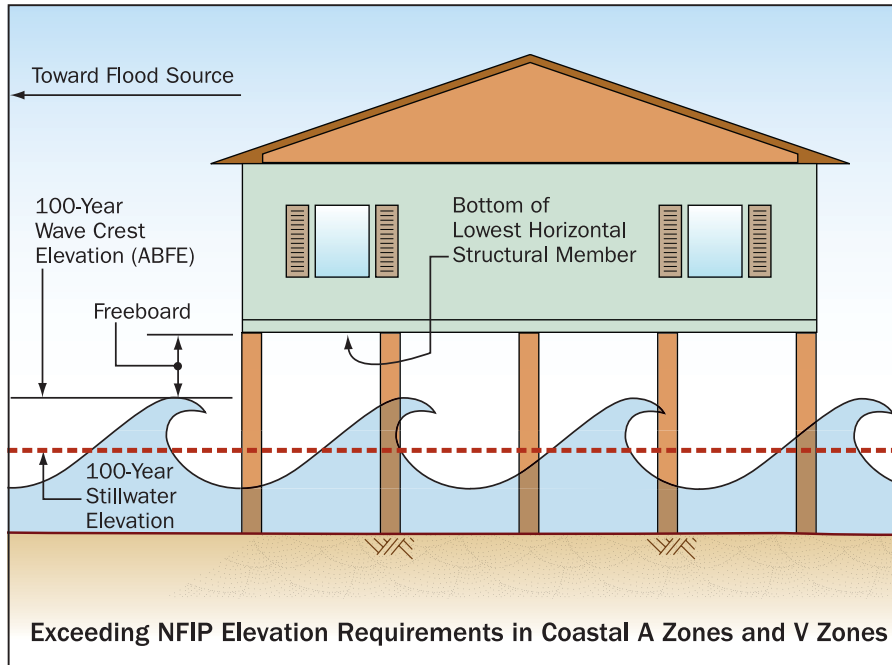


FIGURE 2-2 Note: Refer to local floodplain ordinances to determine minimum freeboard requirements. (Photo courtesy of FEMA.)

IRC R325.5

Openness

CHANGE TYPE: Modification

CHANGE SUMMARY: Section R325 sets out the requirements for mezzanines in residential construction. Guards or walls along open edges of mezzanines must be not more than 36 inches in height from the walking surface. Deletion of Exception 2 eliminates the option for sprinklered mezzanines to be closed off from the room in which they are located.

2015 Code: R325.5 Openness. Mezzanines shall be open and unobstructed to the room in which they are located except for walls not more than 42 inches (1067 mm) 36 inches (914mm) in height, columns and posts.

Exceptions:

1. Mezzanines or portions thereof are not required to be open to the room in which they are located, provided that the aggregate floor area of the enclosed space is not greater than 10 percent of the mezzanine area.
- ~~2. In buildings that are not more than two stories above grade plane and equipped throughout with an automatic sprinkler system in accordance with NFPA 13R or NFPA 13D, a mezzanine having two or more means of egress shall not be required to be open to the room in which the mezzanine is located.~~

CHANGE SIGNIFICANCE: The wall height change is consistent with the height requirement for guard railings in Section R312.1.2. Exception 2 is deleted because automatic sprinkler systems are not required in one- and two-family dwellings in Pennsylvania. However, this deletion does indicate that a mezzanine in a residential structure must be open to the room in which it is located only if it meets Exception 1, even if the building does have a sprinkler system.



FIGURE 2-3 Residential mezzanine