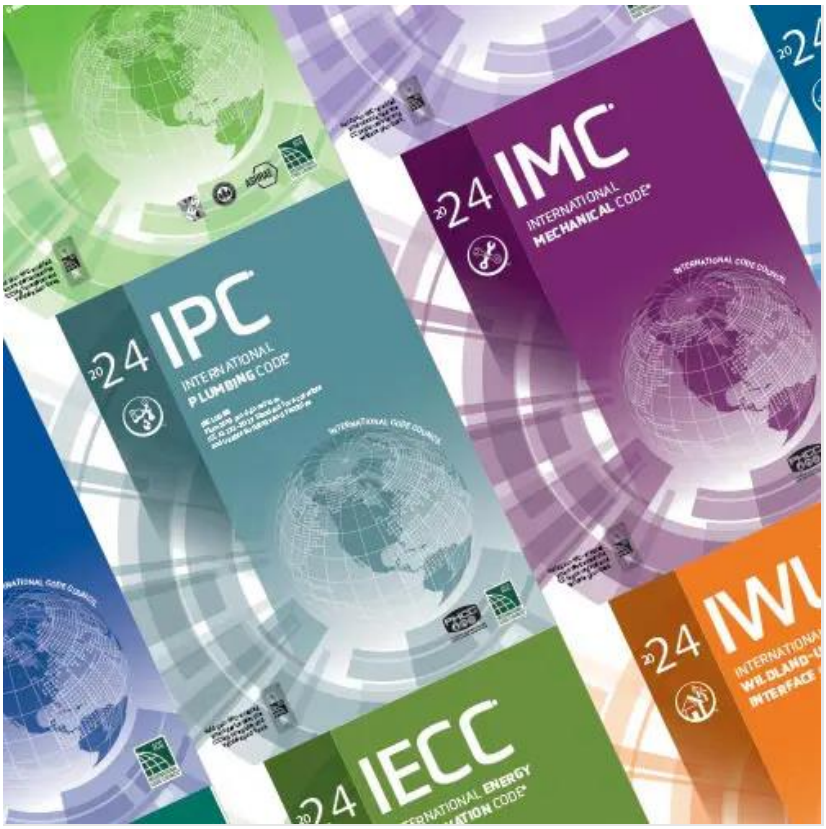
National Association of Home Builders

2024

International Codes Suggested Amendments



National Association of Home Builders

State and local HBAs should consider these amendments to maintain cost-effective and affordable code provisions when discussing the adoption of the 2024 International Codes. NAHB developed these amendments based on the outcome of the 2021-2022 ICC Code Development Cycles.

Each amendment is shown in *legislative text* (underline and ~~strikethrough~~) and includes a supporting reason statement explaining why the jurisdiction should consider them. Some of the suggested amendments, such as those for residential sprinklers, have additional supporting documents and information on the NAHB website and are so indicated.

From the *"Amendment Lookup"* page for each code, read the brief introduction and choose the amendment you are interested in. The underlined portion is a hotlink to the amendment.

This document is also available in Word format. You can copy and/or change any portion of the Word format document to fit your precise needs.

If you have technical questions, would like the word format document, or would like additional information, please contact NAHB Staff:

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2024 International Residential Code – Amendment Lookup

1. Wind-Borne Debris Region (Definitions)

This amendment modifies the definition of "wind-borne debris region" so protection where the wind speed is 130 miles per hour or greater is only required within one mile of the coastal mean high-water line, rather than within one mile of any body of water greater than one mile in width including inland lakes and large rivers.

2. Fire Separation Distance (R302.1)

This amendment would return the fire separation distances between structures to those required before residential sprinklers became part of the International Residential Code.

3. Fire Separation Distance at Townhouses (R302.1)

This amendment removes a requirement to rate exterior walls of townhouses based on a fire separation distance.

4. Self-Closing Devices (R302.5.1)

This amendment removes the requirement for all doors separating a garage from the interior of a dwelling to be equipped with a self-closing and self-latching device.

5. Protection of Building Envelope (R306.3.6.1)

This amendment eliminates the requirement to provide an exterior-rated door at the top of a stairway enclosed by breakaway walls and access to a dwelling elevated on piers or piles in a coastal flood zone.

6. Residential Fire Sprinklers (R309)

This amendment would delete the mandatory requirement for residential sprinklers from the International Residential Code. A companion amendment titled Fire Separation Distance returns the fire separation distances between structures to those required before residential sprinklers became part of the IRC.

7. Habitable Attics (R316)

This amendment removes the requirement that a habitable attic must be sprinklered to permit one to be constructed over a two-story dwelling or to provide one larger than one-third of the floor area below.

8. Stair Geometry: 8-inch Riser (R318.7.5)

This amendment revises the 2024 IRC to return the stair geometry to 8-inch riser by 9-inch tread depth as was found in the UBC.

9. Stair Geometry: 8.25-Inch Riser (R318.7.5)

This amendment revises the 2024 IRC to return stair geometry to the legacy 8 ¼-inch riser by 9-inch tread depth.

10. Guard Requirement (R321.1.1)

This amendment reinstates the guard requirement only for those areas where the elevation difference from the walking edge to the ground directly below is more than 30 inches.

11. Foundation Anchorage (R403.1.6)

This amendment provides an exception to the requirement for attaching bottom plates of braced wall panels on the interior of a dwelling to foundations with anchor bolts. The exception applies in low-wind, low-seismic areas where gypsum board is used as the bracing method for the interior wall in question.

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1. Wind-Borne Debris Protection – Definition of Wind-Borne Debris Region

This amendment modifies the definition of "wind-borne debris region" so protection where the wind speed is 130 miles per hour or greater is only required within one mile of the coastal mean high-water line, rather than within one mile of any body of water greater than one mile in width including inland lakes and large rivers.

Revise as follows:

[RB] WINDBORNE DEBRIS REGION. Areas within hurricane-prone regions located in accordance with one of the following:

1. Within 1 mile (1.61 km) of the coastal mean high-water line where ~~an Exposure D condition exists upwind at the waterline and~~ the ultimate design wind speed, V, is 130 mph (58 m/s) or greater.
2. In areas where the ultimate design wind speed, V, is 140 mph (63.6 m/s) or greater; or Hawaii.

Reason:

This amendment restores the definition of the wind-borne debris region that existed prior to the 2021 IRC. While billed by the proponents as a clarification that could reduce cost, the change to the definition in the 2024 IRC is a significant change that will cause more confusion than it eliminates and greatly expand where wind-borne debris protection is required.

The use of the word "coastal" in the 130-mph trigger for wind-borne debris protection used in previous editions clearly implied an intent to trigger protection for sites near open water such as the Atlantic Ocean or the Gulf of Mexico. The traditional 130-mph trigger did not apply to water bodies such as fully landlocked lakes or rivers that do not feed directly into the ocean. It would not even apply to rivers that do open to the ocean if the shorelines of such rivers are more than one mile from the mean high-water line at the actual coast.

However, many such lakes or rivers are more than a mile wide in at least one direction and a site located upwind of that direction could be classified as Exposure D. Therefore, the revised definition in the 2024 IRC would in fact appear to capture sites near the shorelines of large inland lakes or wide rivers (whether open to the ocean or not) if the wind speed at the site also equals or exceeds 130 mph. Sites along wide bays and estuaries that are more than a mile from where such features open to the ocean or Gulf would also be captured.

A close examination of the 130-mph wind contour for Risk Category II buildings (the category that covers dwellings and most multifamily construction) reveals several areas for which the revised definition would potentially trigger wind-borne debris protection where it is not already required. Notable examples include the following:

- *Narraganset Bay and the Sakonnet River in RI near Providence, RI*
- *Shinnecock Bay on Long Island (Hampton Bays, Shinnecock Hills, East Quogue)*
- *Lake Mattamuskeet in Hyde County, North Carolina*
- *White Lake in Bladen County, North Carolina*
- *Lakes Moultrie and Marion in South Carolina*
- *Lake Houston northwest of Houston (near Atascocita)*
- *Lake Corpus Christi northwest of Corpus Christi*

However, these areas, or similar areas, have not necessarily experienced widespread wind-borne debris damage during hurricanes. For example, sites where the Federal Emergency Management Agency's (FEMA) Mitigation Assessment Team (MAT) report on Hurricane Harvey specifically documented wind-borne debris impacts were in areas where the wind speed per the 2009 IRC and ASCE 7-05 (the locally adopted editions at the time) required protection regardless of the proximity to the coast. Many of the sites were also within one mile of the Gulf of Mexico, so protection would be required even under the current coastal mean high-water line trigger. Similarly, where the Irma MAT report documented wind-borne debris damage in Ramrod Key and Little Torch Key, FL, protection is already required based on the design wind speed and again, most of the area of both islands could be considered "within one mile of the coastal mean high-water line".

Even in Hurricane Katrina, wind-borne debris damage around Lake Pontchartrain, LA (which is technically an estuary rather than an inland lake) was limited to specific conditions. The FEMA and NIST reports did not document wind-borne debris damage in areas such as Laplace, Madisonville, Mandeville and Lacombe, LA, which all lie near where the 130 mph wind contour crosses Lake Pontchartrain. Reported wind-borne debris damage from Katrina primarily occurred in urban areas (e.g. downtown New Orleans) or suburban commercial areas (e.g. Slidell) where blow-off from aggregate roofs occurred, or in areas along the actual Gulf coastline where wind-borne debris protection would be required anyway as the ultimate wind speed is 140mph or higher

The Home Innovation Research Lab calculated the cost impact for installing common methods of wind-borne debris protection on a typical home with 360 square feet of glazing. The added cost was around $1,800 a home if wood structural panels are used, $3,400 if manually operated hurricane shutters are used, and $9,600 if impact-resistant glazing is provided.

Contrary to the proponent's statement that the changes to the definition would not increase the cost of construction, these are clearly significant impacts that can price thousands of people in an area out of a new home. This negative impact on affordability is particularly concerning where the revised definition may impact a small, rural, lower-income community that may be miles from the Atlantic or Gulf coast but just happens to be adjacent to a lake or river large enough to trigger Exposure D conditions. Homebuyers and renters in these communities or other communities impacted by this change may find themselves only able to afford older, existing houses that were not built to any edition of the IRC and are significantly less resistant to a variety of hazards than newer homes.

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2. Fire Separation Distance

This amendment would return the fire separation distances between structures to those required before residential sprinklers became part of the International Residential Code. It also preserves the improved text from later editions regarding minimum fire-resistance ratings.

Revise as follows:

Delete Tables R302.1(1) and R302.1(2) and replace with new table.

Exterior Wall Element		Minimum Fire Resistance Ratings	Minimum Fire Separation Distance
Walls	Fire-resistance rated	1-hour—tested in accordance with ASTM E119, UL 263, or Section 703.3 of the International Building Code with exposure from both sides.	0-feet
	Not Fire-resistance rated	0-hours	3-feet [a]
Projections	Not allowed	N/A	< 2-feet
	Fire-resistance rated	1-hour on the underside, or heavy timber, or fire-retardant-treated wood. [b, c]	2-feet [a]
	Not fire-resistance rated	0-hours	3-feet
Openings in Walls	Not allowed	N/A	<3-feet
	Unlimited	0-hours	3-feet [a]
Penetrations	All	Comply with R302.4.	< 3-feet
		None required	3-feet [a]

Table R302.1 Exterior Walls

For SI: 1 foot = 304.8 mm.
N/A = Not Applicable
a. For residential subdivisions and townhouses where all *dwellings* are equipped throughout with an automatic sprinkler system installed in accordance with Section P2904, the *fire separation distance* for exterior walls not fire-resistance rated and for fire-resistance-rated projections shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining *lot* provides an open setback *yard* that is 6 feet or more in width on the opposite side of the property line.
b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.
c. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where vent openings that communicate with the attic are not installed in the overhang or gable wall.

Reason:

During the supplemental code cycle before the 2006 edition of the International Residential Code (IRC), the fire separation distances were increased by 2-feet without any scientific data or reports that proved the allowable distance found in previous editions of the IRC contributed to any increase in exposure fires from one dwelling to another. Despite this fact, the IRC code development committee has failed to return this section to the earlier language.

To this day, there are no known reports or studies that demonstrate the previously allowed 3-foot separation distance from the property line and 6-foot separation between structures failed to provide the minimum required safe distance.

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3. Fire Separation Distance at Townhouses

Revise as follows:

Delete new text.

FIRE SEPARATION DISTANCE. The distance measured from the building face to one of the following:

1. To the closest interior *lot line*.
2. To the centerline of a street, an alley or public way.
3. To an imaginary line between two buildings ~~or *townhouse units*~~ on the *lot*.

The distance shall be measured at a right angle from the face of the wall.

R302.1 Exterior walls. Construction, projections, openings, and penetrations of exterior walls of *dwellings*, ~~*townhouses and*~~ accessory buildings shall comply with Table R302.1(1) ~~based on *fire separation distance*~~; or *dwellings* ~~and *townhouses*~~ equipped throughout with an *automatic sprinkler system* installed in accordance with Section P2904 shall comply with Table R302.1(2) ~~based on *fire separation distance*~~.

For the purposes of determining *fire separation distance*, *dwellings* ~~and *townhouses*~~ on the same *lot* shall be assumed to have an imaginary line between them. Where a new *dwelling* ~~or *townhouse*~~ is to be erected on the same *lot* as an existing *dwelling* ~~or *townhouse*~~, the location of the assumed imaginary line with relation to the existing *dwelling* ~~or *townhouse*~~ shall be such that the existing *dwelling* ~~or *townhouse*~~ meets requirements of this section.

~~Where a *lot line* exists between adjacent *townhouse units*, *fire separation distance* of *exterior walls* shall be measured to the lot line. Where a *lot line* does not exist between adjacent *townhouse units*, an imaginary line shall be assumed between the adjacent *townhouse units* and *fire separation distance* of *exterior walls* shall be measured to the imaginary line. *Fire separation distance* and requirements of Section R302.1 shall not apply to walls separating townhouse units that are required by Section R302.2.~~

Exceptions:

1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the *fire separation distance*.
2. Walls of *individual dwelling units* and their *accessory* buildings located on the same *lot*.
3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from *permits* are not required to provide wall protection based on location on the *lot*. Projections beyond the exterior wall shall not extend over the *lot line*.
4. Detached garages accessory to a *dwelling unit* located within 2 feet (610 mm) of a *lot line* are permitted to have roof eave projections not exceeding 4 inches (102 mm).
5. Foundation vents installed in compliance with this code are permitted.

Reason:

This amendment returns the text to how it appeared in the 2021 International Residential Code (IRC). Without this amendment the text would apply only to townhouse walls that are not part of the separation between townhouse units (See Section R302.2). It would apply only if there were one exterior wall set parallel within up to 5 feet to the line of fire separation. Where the wall of the adjoining unit is perpendicular to this line protection would not be required. This sets up a confusing circumstance that has very limited application.

Walls separating townhouses are adequately covered in Section R302.2 and adding townhouses to the fire separation provisions in Section R302.1 creates confusion. Section R302.2 on townhouse separation does not address lot lines, because there is no need. The current provisions work whether a lot line is there or not.

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4. Self Closing Devices

This amendment removes the requirement for all doors separating the garage from the interior dwelling to be equipped with a self-closing and latching device.

Revise as follows:

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 *dwelling unit* shall be equipped with solid wood doors not less than 1 3/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches (35 mm) thick, or 20- minute fire-rated doors~~. Doors shall be self-latching and equipped with a self-closing or automatic closing device~~.

Reason:

For many years, proponents of the self-closing and self-latching requirements have argued that fires originating in the garage could pass through these openings but failed to provide any reliable data or statistics. As a result, the committee and the governmental members have repeatedly disapproved this requirement.

During the 2009-10 code development process, proponents returned with a new reason statement; to prevent the spread of carbon monoxide from vehicles and the by-products produced by burning thermoplastics. While the proponents produced an extremely lengthy dissertation on the hazards of carbon monoxide and the number of false alarms created by carbon monoxide detectors, no statistical substantiation pointing to the need for self-closing and latching doors on these openings was provided, nor has there been any other evidence of the efficacy of providing them on carbon monoxide produced by other parties.

The required doors are not tested to prevent the passage of carbon monoxide gas, nor are they listed for such purposes. Energy code requirements only limit the air leakage of exterior doors, and other requirements do not require partitions be sealed to prevent all air exchange, therefore the requirement to self-close and latch is not likely to prevent carbon monoxide from entering a dwelling unit.

Additionally in practice, getting these doors to close and latch while complying with energy code requirements is very difficult to achieve. They often require spring hinges that cause doors to aggressively slam closed, or heavy-duty commercial door closers to force the latching of the door. These heavy devices make the doors difficult to operate while families conduct the business of everyday living. Leading many to prop these doors open or disable the devices all together negating any purported benefits.

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5. Protection of Building Envelope

This amendment eliminates the requirement to provide an exterior-rated door at the top of a stairway that is enclosed by breakaway walls and provides access to a dwelling elevated on piers or piles in a coastal flood zone.

Revise as follows:

Delete Section R306.3.6.1 entirely.

~~**R306.3.6.1 Protection of building envelope.** An exterior door that meets the requirements of Section R609 shall be installed at the top of stairs that provide access to the building and that are enclosed with walls designed to break away in accordance with Section R306.3.5.~~

Reason:

This amendment deletes the requirement added in the 2015 IRC that an exterior door be provided at the top of a stairway enclosed by breakaway walls and providing access to a dwelling located in a Coastal A Zone or Zone V special flood hazard area and elevated on piers or piles. While having a door at the top of such a stair may be good practice, the additional requirements associated with it being an exterior door are overly conservative, particularly if the door at the bottom of the enclosed stair is also an exterior door. By requiring compliance with all of the requirements of Section R609, the specified door would need to have a design pressure rating consistent with the design wind speed for the site, the door frame would need to be stiffened to resist the loads from such a door, proper anchorage of the door to the frame would need to be provided, and the door opening would need head, jamb, and sill flashing. The minimum added cost to provide a standard exterior door with flashing in lieu of a standard interior door is around $300; a hurricane wind-rated door would add an additional $200-$300 to the minimum costs.

It is noted that this requirement does not appear in the basic construction requirements of the National Flood Insurance Program in accordance with 44 CFR 60.3. It is also not specified as a practice that a community would earn credit for mandating and enforcing under FEMA's Community Rating Service and would not lead to discounted flood insurance premiums.

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6. Residential Fire Sprinklers

This amendment would delete the mandatory requirement for residential sprinklers from the International Residential Code. A companion amendment titled Fire Separation Distance returns the fire separation distances between structures to those required before residential sprinklers became part of the IRC.

Revise as follows:

Delete Section R309 entirely.

~~**SECTION R309**~~
~~**AUTOMATIC SPRINKLER SYSTEMS**~~

~~**R309.1 Townhouse automatic sprinkler systems.**~~
~~An automatic sprinkler system shall be installed in townhouses.~~

~~**Exception**: An automatic sprinkler system shall not be required where additions or alterations are made to existing townhouses that do not have an automatic sprinkler system installed.~~

~~**R309.1.1 Design and installation.**~~
~~Automatic sprinkler systems for townhouses shall be designed and installed in accordance with Section P2904 or NFPA 13D.~~

~~**R309.2 One- and two-family dwellings automatic sprinkler systems.**~~
~~An automatic sprinkler system shall be installed in one- and two-family dwellings.~~

~~**Exception**: An automatic sprinkler system shall not be required for additions or alterations to existing buildings that are not already provided with a sprinkler system.~~

~~**R309.2.1 Design and installation.**~~
~~Automatic sprinkler systems shall be designed and installed in accordance with Section P2904 or NFPA 13D.~~

Reason:

Since the inclusion of the mandatory requirement for residential sprinklers in the 2009 IRC, 46 states have amended or passed legislation removing the residential sprinkler mandate for new one- and two- family dwellings. Of those states, 27 prohibit communities from requiring fire sprinkler systems from being installed. It is important to note that the voluntary installation of residential sprinklers is still allowed.

The median age of owner-occupied homes in the U.S. is 40 years, and that number continues to increase. These older homes are more likely to have outdated electrical systems, appliances, use space heaters or display other characteristics that lead to a greater risk of a fire starting. Newer homes have fire blocking, hardwired smoke alarms and egress windows installed to today's codes, all of which increase the chances of surviving a fire. ***Even as homes built to today's residential code get older, they will continue to provide protection for families through their improved safety.***

While questions regarding construction code requirements intended to increase the safety of homes cannot, and should not, be decided solely on the issue of cost, it is reasonable to ask if there is a demonstrated state- or region-specific need for the requirement or if an acceptable level of safety can be achieved through other, less expensive means. The cost of an incremental increase in the margin of safety can be quite high.

Higher regulatory costs have real consequences for working American families. These regulations end up pushing the price of housing beyond the means of many teachers, police officers, firefighters and other middle-class workers. Already, 103.5 million households are not able to afford a new median priced new home. And over 106,000 households would no longer qualify for a mortgage based on that $1,000 increase to a median-priced home in the U.S., the average cost of a sprinkler system is $6,000, and regionally it is much higher.

Mandating costly incremental increases in safety will only protect those who can afford them and will often decrease safety for those who cannot. Families who cannot qualify to purchase homes due to the increased costs from mandatory code requirements such as fire sprinklers will have to live in housing that is less safe, because that housing was built to less stringent code requirements.

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7. Habitable Attics

This amendment removes the requirement that a habitable attic needs to be sprinklered in order to be constructed over a two-story dwelling or to provide a habitable attic larger than one-third of the floor area below.

Revise as follows:

R316.1 General. Habitable attics shall comply with Sections R316.2 and R316.3.

R316.2 Minimum dimensions. A habitable attic shall have a floor area in accordance with Section R312 and a ceiling height in accordance with Section R313.

R316.3 Story above grade plane. A habitable attic shall be considered a story above *grade plane*.

Exceptions: A habitable attic shall not be considered to be a story above *grade plane* provided that the habitable attic meets all the following:

~~1. The aggregate area of the *habitable attic* is either of the following:~~

~~1.1. Not not greater than one-third of the floor area of the story below.~~

~~1.2. Not greater than one-half of the floor area of the story below where the habitable attic is located within a dwelling unit equipped with an automatic fire sprinkler system in accordance with Section P2904.~~

1. The aggregate area of the *habitable attic* is not greater than one-third of the floor area of the story below.
2. The occupiable space is enclosed by the roof assembly above, knee walls, if applicable, on the sides and the floor ceiling assembly below.
3. The floor of the habitable attic does not extend beyond the exterior walls of the story below.

~~4. Where a *habitable attic* is located above a third story, an automatic sprinkler system in accordance with Section P2904 shall be installed in the *habitable attic* and remaining portion of the townhouse unit or dwelling unit or units located beneath the *habitable attic*.~~

R316.4 Means of egress. The means of egress for habitable attics shall comply with the applicable provisions of Section R318.

Reason:

These modifications remove portions of the newly added Section R326 Habitable Attics. The proponent of this code change stated that it was necessary to add the new language in the IRC since there was inconsistency between the IRC and IBC and that a habitable attic should have similar requirements as a mezzanine in the IBC.

This section places limits on the aggregate area of a habitable attic of not greater than one-third of the floor area of the story below. Having this upper limit on the area would allow for a habitable attic without considering it as a story and would address concerns of it being a full story or equal to the area of the floor(s) below.

Exception #4 has been amended for deletion since it would require the dwelling unit or townhouse unit to be equipped with a fire sprinkler if a habitable attic is located above the third story. While an enclosed mezzanine of similar dimensions would require a sprinkler per Section R325.5, a habitable attic, regardless of use, would require an emergency and escape rescue opening, while a mezzanine does not if it's not a sleeping room. The addition of a sprinkler system would add significant cost to a new dwelling unit or townhouse that is unnecessary.

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8. Stair Geometry (8-inch Riser)

This amendment revises the 2024 Internal Residential Code to coincide with the stair geometry to 8-inch riser by 9-inch tread depth as found in the UBC.

Revise as follows:

R318.7.5 Stair treads and risers. Stair treads and risers shall meet the requirements of this section. For the purposes of this section, dimensions and dimensioned surfaces shall be exclusive of carpets, rugs or runners.

R318.7.5.1 Risers. The riser height shall be not more than 8-inches (210 mm) ~~7 3/4 inches (196 mm).~~ The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8-inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted provided that the openings located more than 30 inches (762 mm), as measured vertically, to the floor or grade below do not permit the passage of a 4-inch-diameter (102 mm) sphere.

Exceptions:

1. The opening between adjacent treads is not limited on spiral stairways.
2. The riser height of spiral stairways shall be in accordance with Section R318.7.11.1.

R318.4.5.2 Treads. The tread depth shall be not less than 9-inches (229mm) ~~10 inches (254 mm).~~ 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 tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8-inch (9.5 mm).

Reason:

This amendment retains the stair geometry requirements allowed under the Uniform Building Code (UBC). This amendment allows the continued use of the 8" x 9" geometry, the dimensions still accepted by many state and local jurisdictions across the country. In fact, many adopt stair geometry requirements of 8 1⁄4" x 9".

The 8" x 9" geometry has always adequately provided for occupant safety in residential occupancies. No sound documentation or data has ever been presented demonstrating it is any less safe or a contributing factor in accidental residential falls than a stair geometry of 7-3⁄4" x 10" or other even more stringent geometries.

The safety benefits of the 7-3⁄4" riser and 10" tread stair geometry are technically unsubstantiated and are not practical in many home designs. The studies provided point generically to stairways in homes where falls occurred requiring emergency room visits or a doctor's care, without breaking down further the specific condition or age of the stairs where a fall may have occurred, or other conditions affecting usability of a stairway such as lighting, presence of a handrail, or lack of consistent stairway geometry.

In one state that adopted the 7-3/4" X 10" geometry, builders found their entire catalogue of stock plans were rendered obsolete and required extensive redesign to accommodate the changed stairway geometry. Where the footprint of the house must be redesigned or increased to accommodate the additional space needed, efficient space design and adequately sized living spaces are sacrificed without any demonstrated gain. This can lead to an economic hardship on first-time home buyers of smaller homes, and in particular for construction on smaller lots, infill projects, and townhomes.

As outlined in Section R101.3 of the International Residential Code (IRC), the intent of the code is to provide minimum requirements for occupant safety and health. There is adequate substantiation to show that 8-inch x 9 inch geometry provides this minimum level of occupant safety.

Notes/additional background:

This is an alternative amendment to accommodate those jurisdictions accustomed to or that wish to retain the use of past UBC requirements of an 8-inch maximum riser height and a 9-inch minimum tread depth.

Prior to changes in 1996 BOCA and 1995 CABO One-and-Two Family Building Code, stair geometry requirements were set at an 8-1⁄4 inch maximum for risers and a 9-inch minimum tread depth. For these dimensions, please see suggested amendment "Stair Geometry (8-1⁄4" x 9")."

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9. Stair Geometry (8.25-inch Riser)

This amendment revises the 2024 Internal Residential Code to return stair geometry to the 8-1⁄4-inch riser by 9-inch tread depth of the 1992 CABO.

Revise as follows:

R318.7.5 Stair treads and risers. Stair treads and risers shall meet the requirements of this section. For the purposes of this section, dimensions and dimensioned surfaces shall be exclusive of carpets, rugs or runners.

R318.7.5.1 Risers. The riser height shall be not more than 8-1⁄4-inches (210mm) ~~7-3/4 inches (196 mm~~). The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted provided that the openings located more than 30 inches (762 mm), as measured vertically, to the floor or grade below do not permit the passage of a 4-inch-diameter (102 mm) sphere.

Exceptions:

1. The opening between adjacent treads is not limited on spiral stairways.
2. The riser height of spiral stairways shall be in accordance with Section R318.7.11.1.

R318.7.5.2 Treads. The tread depth shall be not less than 9-inches (229mm) ~~10 inches (254 mm)~~. 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 tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

Reason:

This amendment retains the stair geometry requirements allowed under the Building Officials and Code Administrators National Building Code (BOCA). This amendment allows the continued use of the 8-1⁄4" x 9" geometry, the dimensions still accepted by many state and local jurisdictions across the country.

These dimensions, originally accepted in the first draft of the International Residential Code (IRC), and the historic dimensions in the Council of American Building Official's (CABO) One- and Two-family Building Code, adequately provide for stair safety in residential occupancies. No sound documentation or data has ever been presented demonstrating these proposed dimensions are any less safe or are a contributing factor in accidental residential falls than a stair geometry of 7-3⁄4"x 10".

The safety benefits of the 7-3⁄4" riser and 10" tread stair geometry are technically unsubstantiated and are not practical in many home designs. The studies provided point generically to stairways in homes where falls occurred requiring emergency room visits or a doctor's care, without breaking down further the specific condition or age of the stairs where a fall may have occurred, or other conditions affecting usability of a stairway such as lighting, presence of a handrail, or lack of consistent stairway geometry.

In one state that adopted the 7-3/4" X 10" geometry, builders found their entire catalogue of stock plans were rendered obsolete and required extensive redesign to accommodate the changed stairway geometry. Where the footprint of the house must be redesigned or increased to accommodate the additional space needed, efficient space design and adequately sized living spaces are sacrificed without any demonstrated gain. This can lead to an economic hardship on first-time home buyers of smaller homes, and in particular for construction on smaller lots, infill projects, and townhomes.

As outlined in Section R101.3 of the IRC, the intent of the code is to provide minimum requirements for occupant safety and health. There is adequate substantiation to show that 8 1⁄4-inch x 9 inch geometry provides this minimum level of occupant safety.

Notes/additional background:

Prior to the Building Officials and Code Administrators 1996 BOCA National Building Code, and the 1995 CABO One-and-Two Family Building Code, stair geometry requirements were set at the 8-1⁄4" x 9" dimensions.

An alternative amendment is available for jurisdictions that wish to retain the use of past UBC requirements of an 8-inch maximum riser height and 9-inch minimum tread depth. For that amendment, please see suggested amendment "Stair Geometry (8" x 9")."

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10. Guard Requirement

This amendment reinstates the guard requirement only for those areas where the elevation difference from the walking edge to the ground directly below is more than 30 inches.

Revise as follows:

R321.1.1 Where required. Guards shall be provided for those portions of open-sided walking surfaces, including floors, stairs, ramps and landings that are located more than 30 inches (762 mm) measured vertically to the floor or grade below. ~~at any point within 36 inches (914 mm) horizontally to the edge of the open side.~~ Insect screening shall not be considered as a *guard*.

Reason:

This amendment retains the provisions of the 2015 IRC and previous editions, where guardrails were required when the elevation difference between the walking surface was greater than 30-inches to the floor or grade directly below. The IRC was amended in 2018 to require a guardrail where the elevation difference is greater than 30-inches from the walking surface to a horizontal point 36-inches adjacent to the leading edge of the walking surface to the grade or floor below. This change will now require the building official to carry a four-foot level to conduct inspections.

The proponent of this change referred to work conducted, and reports written by the ICC Code Technology Committee (CTC). At no time during the public hearings was any technical justification presented to substantiate the change requiring the building official to measure 36-inches away from the leading edge of the walking surface or tread to determine when a guardrail should or should not be required. After reviewing the many reports from the CTC website, it is still unclear from where the 36-inch requirement was derived. There are no studies that can support claims that this will have an effect on reducing possible injuries. While the proponent promotes this as a means for consistent enforcement of the guard requirements, there is no evidence of increased risk to the safety of the occupant if the current method of measuring from the edge of the walking surface to grade below is used.

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11. Foundation Anchorage

This amendment provides an exception to the requirement for attaching bottom plates of braced wall panels on the interior of a dwelling to foundations with anchor bolts. The exception applies in low-wind, low-seismic areas where gypsum board is used as the bracing method for the interior wall in question.

Revise as follows:

Add new exception 3.

R403.1.6 Foundation anchorage. Wood sill plates and wood walls supported directly on continuous foundations shall be anchored to the foundation in accordance with this section.

Cold-formed steel framing shall be anchored directly to the foundation or fastened to wood sill plates anchored to the foundation. Anchorage of cold-formed steel framing and sill plates supporting cold-formed steel framing shall be in accordance with this section and Section R505.3.1 or R603.3.1.

Wood sole plates at all exterior walls on monolithic slabs, wood sole plates of *braced wall panels* at building interiors on monolithic slabs and all wood sill plates shall be anchored to the foundation with minimum 1/2-inch diameter (12.7 mm) anchor bolts spaced a maximum of 6 feet (1829 mm) on center or *approved* anchors or anchor straps spaced as required to provide equivalent anchorage to 1/2-inch-diameter (12.7 mm) anchor bolts. Bolts shall extend a minimum of 7 inches (178 mm) into concrete or grouted cells of concrete masonry units. The bolts shall be located in the middle third of the width of the plate. A nut and washer shall be tightened on each anchor bolt. There shall be a minimum of two bolts per plate section with one bolt located not more than 12 inches (305 mm) or less than seven bolt diameters from each end of the plate section. Interior bearing wall sole plates on monolithic slab foundations that are not part of a *braced wall panel* shall be positively anchored with approved fasteners. Sill plates and sole plates shall be protected against decay and termites where required by Sections R304 and R305. Anchor bolts shall be permitted to be located while concrete is still plastic and before it has set. Where anchor bolts resist placement or the consolidation of concrete around anchor bolts is impeded, the concrete shall be vibrated to ensure full contact between the anchor bolts and concrete.

Exceptions:

1. Walls 24 inches (610 mm) total length or shorter connecting offset braced wall panels shall be anchored to the foundation with a minimum of one anchor bolt located in the center third of the plate section and shall be attached to adjacent braced wall panels at corners as shown in Item 9 of Table R602.3(1).
2. Connection of walls 12 inches (305 mm) total length or shorter connecting offset braced wall panels to the foundation without anchor bolts shall be permitted. The wall shall be attached to adjacent braced wall panels at corners as shown in Item 9 of Table R602.3(1).
3. Where the basic wind speed in accordance with Figure R301.2(4)A does not exceed 115 miles per hour (51 m/s), the seismic design category is A or B and Method GB in accordance with Section R602.10 is used for a *braced wall line* on the interior of the dwelling, anchor bolts shall not be required for the wood sole plates of the *braced wall panels*. Positive anchorage with approved fasteners shall be provided.

Reason:

This amendment revises the language for anchorage of light-frame wood stud walls to the foundations of the house. As currently stated, the provisions require anchor bolts for the portions of a wall on the interior of a dwelling that are designated as braced wall panels for a braced wall line passing through the dwelling. To provide the required 7–inch embedment depth, a thickened slab or other continuous footing would be necessary. Chapters 4 and 6 of the IRC do not explicitly require a continuous foundation in these locations in low-wind, low-seismic areas, and they are not traditionally provided. If interpreted and enforced by plan reviewers and inspectors in these areas, disputes and project delays will result and/or homeowners will incur significant additional construction costs.

The ICC Ad-Hoc Committee on Wall Bracing revised this section during the 2007/2008 code cycle with the intent of ensuring that sufficient anchorage is provided along braced wall lines inside a dwelling to transfer lateral loads to either monolithic (thickened) slab foundations or continuous footings. While NAHB agrees that providing a continuous load path is important, the new language is overly broad in its application

and not technically justified for many common conditions. The typical bracing method used for braced wall lines on the interior of a one- or two-story dwelling in a low-wind, low-seismic area is Method GB, consistent with the use of gypsum board as the typical interior wall finish material. The allowable shear capacity for Method GB when used on both sides of a braced wall is 200plf (pounds per linear foot). The standard fastener schedule, Table R602.3(1), specifies 3-16d nails at 16" spacing for fastening the bottom plate of a braced wall panel on the interior of a dwelling to floor framing below (such as a raised floor system over a crawlspace or pier-and-beam foundation). This standard nailing provides a 200plf allowable capacity, as would many typical post-installed anchors (e.g. wedge or expansion anchors) that are short enough to be installed in just a slab-on-grade without the need for thickened footings, or even power-actuated fasteners. 1/2" diameter anchor bolts at 6-foot spacing are not necessary for the proper anchorage of these walls.

The proposed amendment provides an exception to the requirement that an interior wall that also used as part of a braced wall line be fastened to a slab-on-grade with anchor bolts, rather than other methods of making a "positive connection" such as wedge or expansion anchors, power fasteners, or concrete nails. The exception is limited to areas of low wind and low seismic hazards and to walls braced using gypsum board, with its lower allowable shear capacity.

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2024 International Building Code – Amendment Lookup

1. Wind-Borne Debris Region (Definitions)

This amendment modifies the definition of "wind-borne debris region" so protection where the wind speed is 130 miles per hour or greater is only required within one mile of the coastal mean high-water line, rather than within one mile of any body of water greater than one mile in width including inland lakes and large rivers.

2. Sound Transmission (1206.3)

This amendment adds an exception to remove the impact sound requirement between a dwelling or sleeping unit and a public or service area.

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1. Wind-Borne Debris Protection – Definition of Wind-Borne Debris Region

This amendment modifies the definition of "wind-borne debris region" so protection where the wind speed is 130 miles per hour or greater is only required within one mile of the coastal mean high-water line, rather than within one mile of any body of water greater than one mile in width including inland lakes and large rivers.

Revise as follows:

[BS]WINDBORNE DEBRIS REGION. Areas within hurricane-prone regions located:

1. Within 1 mile (1.61 km) of the mean high-water line where ~~an Exposure D condition exists upwind at the waterline and~~ the basic wind speed, V, is 130 mph (58 m/s) or greater; or

2. In areas where the basic wind speed, V, is 140 mph (63 m/s) or greater.

For Risk Category II buildings and structures and Risk Category III buildings and structures, except health care facilities, the windborne debris region shall be based on Figure 1609.3.(1). For Risk Category IV buildings and structures and Risk Category III health care facilities, the windborne debris region shall be based on Figure 1609.3(2).

Reason:

This amendment restores the definition of the wind-borne debris region that existed prior to the 2021 IBC. While billed by the proponents as a clarification that could reduce cost, the change to the definition in the 2024 International Building Code (IBC) is a significant change that will cause more confusion than it eliminates and greatly expand where wind-borne debris protection is required.

The use of the word "coastal" in the 130-mph trigger for wind-borne debris protection used in previous editions clearly implied an intent to trigger protection for sites near open water such as the Atlantic Ocean or the Gulf of Mexico. The traditional 130-mph trigger did not apply to water bodies such as fully landlocked lakes or rivers that do not feed directly into the ocean. It would not even apply to rivers that do open to the ocean if the shorelines of such rivers are more than one mile from the mean high-water line at the actual coast.

However, many such lakes or rivers are more than a mile wide in at least one direction and a site located upwind of that direction could be classified as Exposure D. Therefore, the revised definition in the 2024 IRC would in fact appear to capture sites near the shorelines of large inland lakes or wide rivers (whether open to the ocean or not) if the wind speed at the site also equals or exceeds 130 mph. Sites along wide bays and estuaries that are more than a mile from where such features open to the ocean or Gulf would also be captured.

A close examination of the 130-mph wind contour for Risk Category II buildings (the category that covers dwellings and most multifamily construction) reveals several areas for which the revised definition would potentially trigger wind-borne debris protection where it is not already required. Notable examples include the following:

- *Narraganset Bay and the Sakonnet River in RI near Providence, RI*
- *Shinnecock Bay on Long Island (Hampton Bays, Shinnecock Hills, East Quogue)*
- *Lake Mattamuskeet in Hyde County, North Carolina*
- *White Lake in Bladen County, North Carolina*
- *Lakes Moultrie and Marion in South Carolina*
- *Lake Houston northwest of Houston (near Atascocita)*
- *Lake Corpus Christi northwest of Corpus Christi*

However, these areas, or similar areas, have not necessarily experienced widespread wind-borne debris damage during hurricanes. For example, sites where the Federal Emergency Management Agency's (FEMA) Mitigation Assessment Team (MAT) report on Hurricane Harvey specifically documented wind-borne debris impacts were in areas where the wind speed per the 2009 IBC and ASCE 7-05 (the locally adopted editions at the time) required protection regardless of the proximity to the coast. Many of the sites were also within one mile of the Gulf of Mexico, so protection would be required even under the current coastal mean high-water line trigger. Similarly, where the Irma MAT report documented wind-borne debris

damage in Ramrod Key and Little Torch Key, FL, protection is already required based on the design wind speed and again, most of the area of both islands could be considered "within one mile of the coastal mean high-water line".

Even in Hurricane Katrina, wind-borne debris damage around Lake Pontchartrain, LA (which is technically an estuary rather than an inland lake) was limited to specific conditions. The FEMA and NIST reports did not document wind-borne debris damage in areas such as Laplace, Madisonville, Mandeville and Lacombe, LA, which all lie near where the 130 mph wind contour crosses Lake Pontchartrain. Reported wind-borne debris damage from Katrina primarily occurred in urban areas (e.g. downtown New Orleans) or suburban commercial areas (e.g. Slidell) where blow-off from aggregate roofs occurred, or in areas along the actual Gulf coastline where wind-borne debris protection would be required anyway as the ultimate wind speed is 140mph or higher

The Home Innovation Research Lab calculated the cost impact for installing common methods of wind-borne debris protection on a typical home with 360 square feet of glazing. The added cost was around $1,800 a home if wood structural panels are used, $3,400 if manually operated hurricane shutters are used, and $9,600 if impact-resistant glazing is provided.

Contrary to the proponent's statement that the changes to the definition would not increase the cost of construction, these are clearly significant impacts that can price thousands of people in an area out of a new home. This negative impact on affordability is particularly concerning where the revised definition may impact a small, rural, lower-income community that may be miles from the Atlantic or Gulf coast but just happens to be adjacent to a lake or river large enough to trigger Exposure D conditions. Homebuyers and renters in these communities or other communities impacted by this change may find themselves only able to afford older, existing houses that were not built to any edition of the IRC and are significantly less resistant to a variety of hazards than newer homes.

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2. Sound Transmission

This amendment adds an exception to remove the impact sound requirement between a dwelling or sleeping unit and a public or service area.

Revise as follows:

Add new exception.

1206.3 Structure-Borne Sound. Floor-ceiling assemblies between dwelling units and sleeping units or between a dwelling unit or sleeping unit and a public or service area within the structure shall have an impact insulation class rating of not less than 50 where tested in accordance with ASTM E492, or have a Normalized Impact Sound Rating (NISR) of not less than 45 if field tested in accordance with ASTM E1007. Alternatively, the impact insulation class of floor-ceiling assemblies shall be established by engineering analysis based on a comparison of floor-ceiling assemblies having impact insulation class ratings as determined by the test procedures in ASTM E492. Engineering analysis shall be performed by a *registered design professional*.

> **Exception:** Floor/ceiling assemblies between a dwelling unit or sleeping unit and a public or service area shall not be required to have an impact insulation rating.

Reason:

This amendment adds an exception to Section 1206.3 Impact Sound Transmission to address the impact sound requirement of the floor/ceiling assembly between a dwelling or sleeping unit and a public or service area in order to reduce the cost of the required IIC rating. The floor/ceiling assemblies between these areas would not be required to have an impact insulation rating. This would address the noise such as the impact sound of an object dropping on the floor. By adding the exception, it has the potential to reduce the cost of construction, which ranges between $8,000 to $15,000 per dwelling unit.

These modifications would only affect the impact sound requirements of Section 1206.3 and not the airborne sound requirements of Section 1206.2.

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2024 International Fire Code – Amendment Lookup

1. NFPA 13R Sprinklers Systems (903.3.1.2)

This amendment revises the permitted height of the floor level of the highest story in a Group R occupancy that allows for NFPA 13R sprinklers.

2. Fire Apparatus Access Roads – Alternative to Road (D102.1)

This amendment adds an exception permitting fire apparatus access roads to be a driveway, pathway or other approved surface that creates a fire lane not accessible to motor vehicles.

3. Fire Apparatus Road – Increase Dwelling Trigger (D107.1)

This amendment adds an exception raising the trigger for a second fire apparatus access road to 50 dwellings if the width is 26 feet and the development is not in a wildland-urban interface area.

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1. NFPA 13R Sprinkler Systems

This amendment revises the permitted height of the floor level of the highest story in a Group R occupancy that allows for NFPA 13R sprinklers.

Revise as follows:

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903.3.1.2 NFPA 13R sprinkler systems. Automatic sprinkler systems in Group R occupancies shall be permitted to be installed throughout in accordance with NFPA 13R where the Group R occupancy meets all of the following conditions:

1. Four stories or less above grade plane.

2. For other than Group R-2 occupancies, the floor level of the highest story is ~~30~~ 35 feet (~~9144~~ 10668 mm) or less above the lowest level of fire department vehicle access.

   For Group R-2 occupancies, the roof assembly is less than 45 feet (13 716 mm) above the lowest level of fire department vehicle access. The height of the roof assembly shall be determined by measuring the distance from the lowest required fire vehicle access road surface adjacent to the building to the eave of the highest pitched roof, the intersection of the highest roof to the exterior wall, or the top of the highest parapet, whichever yields the greatest distance.

3. The floor level of the lowest story is 30 feet (9144 mm) or less below the lowest level of fire department vehicle access.

The number of stories of Group R occupancies constructed in accordance with Sections 510.2 and 510.4 of the *International Building Code* shall be measured from *grade plane*.

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[F] 903.3.1.2 NFPA 13R sprinkler systems. Automatic sprinkler systems in Group R occupancies shall be permitted to be installed throughout in accordance with NFPA 13R where the Group R occupancy meets all of the following conditions:

1. Four stories or fewer above grade plane.

2. For other than Group R-2 occupancies, the floor level of the highest story is ~~30~~ 35 feet (~~9144~~ 10668mm) or less above the lowest level of fire department vehicle access.

   For Group R-2 occupancies, the roof assembly is less than 45 feet (13 716 mm) above the lowest level of fire department vehicle access. The height of the roof assembly shall be determined by measuring the distance from the lowest required fire vehicle access road surface adjacent to the building to the eave of the highest pitched roof, the intersection of the highest roof to the exterior wall, or the top of the highest parapet, whichever yields the greatest distance.

3. The floor level of the lowest *story* is 30 feet (9144 mm) or less below the lowest level of fire department vehicle access.

The number of stories of Group R occupancies constructed in accordance with Sections 510.2 and 510.4 shall be measured from grade plane.

Reason:

This amendment revises the permitted maximum height from 30-feet to 35-feet for the floor level in a Group R occupancy that will allow for a NFPA 13R sprinkler system.

NFPA 13R has been the standard for installing fire sprinkler in low-rise residential occupancies since 1989. It is scoped to multifamily buildings with a maximum of four stories, but the 2013 edition allowed these buildings to be on top of a fire-separated podium or pedestal, significantly increasing their overall allowed height to 60 feet. The 2018 editions of the IFC and IBC added requirements to address concerns regarding the fire safety of the attics in these podium-style buildings.

The amended language aims at rectifying a change to the 2021 IFC which limited the permitted height to 30 feet instead of reverting back to the pre-2013 limits of four stories total, This was done even

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before the effects of the increased fire safety measures in the 2018 edition could be assessed. This amendment is a compromise between the result of last cycle and the original four-story threshold in the standard. The proposed 35-foot height is well below the 60-foot threshold of previous code editions and more realistically allows for 4-story Group R buildings with floor-to-ceiling heights of 8 to 10 feet which is common in multifamily buildings.

By increasing the permitted height, it will decrease the cost of construction that allows for a 13R sprinkler system instead of a full 13 sprinkler system, which can save over $2,100 per unit in a multi-family building (Home Innovation Research Labs, Cost Analysis of Proposed Group A Code Changes (2018-2019 ICC Code Development Cycle) – October 2018).

Costs associated with requirements for attic protection in NFPA 13 systems not only includes the additional sprinklers and piping but also costs associated with increased hydraulic demand and water supply as well as necessary freeze protection in cold and even moderate climates. Greater density and spacing of sprinklers, larger pipe diameter, sprinklers in concealed spaces, and especially, requirements for attic protection (with some exceptions) all contribute to the added cost. This cost increase does not include the final cost with markup to the building owner or the potential need to add a fire pump in the NFPA 13 system.

Below are the costs based on a four-story, 48-unit apartment building.

Table F117-A. Cost of NFPA 13 Sprinkler System Compared to NFPA 13R System

Component	Unit	Material	Labor	Total	w/O&P	Qty	Cost
Residential sprinkler heads	EA	16	21.50	37.5	53	292	15,476
3/4" diameter CPVC piping (NFPA 13R)	LF	7	6.90	13.9	19.05	4292	81,763
Wet standpipe riser, schedule 20, 4" diameter pipe	FL	5800	2875	--	8675	4	34,700
						Total NFPA 13R System	**131,939**
Additional sprinkler heads (attic)	EA	16	21.50	37.5	53	44	2,332
Additional sprinkler heads (non-exempt bathrooms)	EA	16	21.50	37.5	53	2	106
3/4" diameter CPVC piping (NFPA 13R)	LF	7	6.90	13.9	19.05	(4292)	(81,763)
1-1/2" CPVC piping (NFPA 13)	LF	18.55	9.75	28.3	36.50	4292	156,658
Additional 1-1/2" CPVC piping for new sprinkler heads (NFPA 13)	LF	18.55	9.75	28.3	36.50	618	22,557
Additional floor, wet standpipe riser, schedule 20, 4" diameter pipe	FL	1475	890	--	2365	1	2,365
						Total NFPA 13 System	**234,194**
						Total to Builder	**102,255**

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2. Fire Apparatus Access Roads – Alternative to a Road

This amendment adds an exception permitting fire apparatus access roads to be a driveway, pathway or other approved surface that creates a fire lane not accessible to motor vehicles.

Revise as follows:

Add new exception.

D102.1 Access and loading. Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road with an asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing up to 75,000 pounds (34 050 kg).

> **Exception:** Where two fire apparatus access roads are required by Section 503.1.2 or this appendix, the additional fire apparatus access road is permitted to be a driveway, pathway, court or other approved *fire lane* not accessible to public motor vehicles where designed by a registered design professional to meet the loading requirements and minimum specifications of Section 503 and this appendix, and the surface provides all-weather driving capabilities. Marking or signs shall be provided in accordance with Section 503.3 and Section D103.6.

Reason:

The current provisions of IFC Section 503, Appendix D and the definition of "fire department apparatus road" as written can be interpreted to require the construction of an actual road, street, lane or other feature potentially accessible to public vehicular traffic as well as fire department vehicles, complete with curbs and gutters, shoulders and other components and making a complete intersection with a main road, street, highway, etc. adjacent to the development. However, for long, narrow parcels of land which can only be physically accessed along one of the narrow sides, such an interpretation may result in placing the intersection created by the second access road closer to the main access to the development than is permitted by local highway or zoning ordinances.

Nothing in IFC Section 503 or Appendix D requires the additional road intersect a public way at the same elevation as the public way, or even be a true "road" accessible to vehicular traffic. A code-compliant "road" could simply be a driveway or other pathway primarily intended for pedestrian use but constructed to meet the width, loading and other requirements of a fire apparatus access road. Such a pathway would not need to form a true intersection with public streets but could simply end at a sloped or roll-up curb. The defined term "fire lane" includes such alternatives.

The pointer to the base code requirements for fire apparatus access roads in Section 503 insures the minimum 20-foot width required per Section 503.2.1, the requirement to maintain the access road or fire lane unobstructed per Section 503.4, and the requirements for gates where they are provided are all recognized and maintained, in addition to the dimensional and loading requirements within Appendix D.

The exception could reduce the cost of constructing a fire apparatus access road by allowing for the elimination of curbs and gutters or other elements associated with a road open to public vehicles. The exception would also enable more cost-effective development of sites where the only option under which development of the site would otherwise be permitted would be providing alternative, potentially costly, means of fire protection.

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3. Fire Apparatus Access Roads – Increase Dwelling Trigger

This amendment replaces exception 2 thereby raising the trigger for a second fire apparatus access road to 50 dwellings if the width is 26 feet and the development is not in a wildland-urban interface area.

Revise as follows:

D107.1 One- or two-family dwelling residential developments. Developments of one- or two-family dwellings where the number of dwelling units exceeds 30 shall be provided with two separate and approved fire apparatus access roads.

Exceptions:

1. Where there are more than 30 dwelling units on a single public or private fire apparatus access road and all dwelling units are equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, access from two directions shall not be required.
2. ~~The number of dwelling units on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the fire code official.~~
2. Where there are not more than 50 dwellings on a single public or private fire apparatus access road complying with Section D107.1.1.

D107.1.1 One- or two-family dwelling residential developments having less than 50 units. Developments of one- or two-family dwellings where the number of dwelling units does not exceed 50 shall be permitted to have a single approved fire apparatus access road provided all of the following requirements are met:

1. The minimum unobstructed width of the single fire apparatus access road shall be 26 feet (7925 mm) and shall otherwise comply with Section 503 and Appendix Section D103.
2. Where the fire apparatus access road exceeds 150 feet in length the width and turnaround provisions of Section D103.4 shall be met.
3. A minimum of one fire hydrant on each side of the fire apparatus access road in accordance with Section 507.5 shall be provided. The fire code official shall be permitted to require additional hydrants and hydrant spacing based on the length of the fire apparatus access road, fire flow requirements, and the distance from any point on the street or road frontage to a hydrant.
4. The development is not located in a wildland-urban interface area as defined in the International Wildland-Urban Interface Code

D107.1.2 Future Development. The number of dwelling units on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the fire code official.

Reason:

One of the barriers to affordable housing frequently cited by NAHB members is availability of lots for development. In some cases, the dimensions of such parcels, surrounding development, surrounding terrain or other constraints make it difficult if not impossible to provide a second fire department apparatus road, even if constructed as a sidewalk, bike path or other feature only accessible to fire trucks, not accessible to public motor vehicles. A developer may either be faced with having to sacrifice planned dwelling units or providing alternative, potentially costly, means of fire protection in order to construct the development. Either solution increases the cost of construction for the homes in the development and may render them unaffordable to homebuyers or renters with modest incomes. Or, the developer may be forced to abandon the lot, meaning the IFC has improperly acted as a de facto zoning code.

The current 30 dwelling trigger is low compared to a multifamily development can contain up to 100 units. One of the reasons for the second fire department apparatus road is in case the primary access to the development is blocked by traffic congestion or an accident. Given the average household size is between 2 and 3 people, clearly a 100-unit multifamily building is likely to generate more traffic than 30 single-family houses. Average lot size has also been shrinking, so if travel distance is a concern, it will take less time for fire equipment to traverse many current single-family developments than it may have previously. There is no reason for such a low trigger as 30 homes.

This amendment adds a new subsection that raises the trigger to 50 dwellings, or half the number of dwelling units at which a multifamily development triggers the second fire department apparatus road, if the minimum unobstructed width of the primary fire department apparatus road is increased to 26 feet in width to aid in both fire department access and evacuation, at least one hydrant be placed on each side of the road to minimize the need to run hoses across a road, obstructing both traffic and fire vehicles, and the development is not in a wildfire-prone area.

A pointer to the dead-end turnaround requirements in Section D103.4 underscores the fact a single fire apparatus access road needs to comply with all the requirements of Section 503 and Appendix D. It is noted Table D103.4 requires the fire code official to approve the minimum width and turnarounds for dead-end access roads exceeding 750 in length.

This amendment will reduce the cost of construction for developments of 31 to 50 houses by eliminating the need for the second fire apparatus access road and enabling development of slightly larger parcels. The exception would also enable more cost-effective development of sites where the only option under which development of the site would otherwise be permitted would be providing alternative, potentially costly, means of fire protection.

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