



STATE OF WASHINGTON
STATE BUILDING CODE COUNCIL

May 2018
Log No. 24-GPI-091-Revised

1. State Building Code to be Amended:

- | | |
|---|---|
| <input checked="" type="checkbox"/> International Building Code | <input type="checkbox"/> International Mechanical Code |
| <input type="checkbox"/> ICC ANSI A117.1 Accessibility Code | <input type="checkbox"/> International Fuel Gas Code |
| <input type="checkbox"/> International Existing Building Code | <input type="checkbox"/> NFPA 54 National Fuel Gas Code |
| <input type="checkbox"/> International Residential Code | <input type="checkbox"/> NFPA 58 Liquefied Petroleum Gas Code |
| <input checked="" type="checkbox"/> International Fire Code | <input type="checkbox"/> Wildland Urban Interface Code |
| <input type="checkbox"/> Uniform Plumbing Code | |

For the Washington State Energy Code, please see specialized [energy code forms](#)

Section(s): IFC&IBC 903.2.8.4 (NEW) & 903.2.8.5 (NEW), WAC 51-50-0504, IBC Table 504.3 & 504.4

Title: Group R-3 occupancies 4 stories or less above grade plane. Group R-3 occupancies less than 60 feet in height. TABLE 504.3 Allowable Building Height in Feet Above Grade Plane, TABLE 504.4 Allowable Number of Stories Above Grade Plane

2. Proponent Name (Specific local government, organization or individual):

Proponent: Ken Brouillette
Title: Technical Code Coordinator
Date: 9/18/2024

3. Designated Contact Person:

Name: Ken Brouillette
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4. Proposed Code Amendment. Reproduce the section to be amended by underlining all added language, striking through all deleted language. Insert new sections in the appropriate place in the code in order to continue the established numbering system of the code. If more than one section is proposed for amendment or more than one page is needed for reproducing the affected section of the code, additional pages may be attached.

Clearly state if the proposal modifies an existing amendment or if a new amendment is needed. If the proposal modifies an **existing amendment**, show the modifications to the existing amendment by underlining all added language and striking through all deleted language. If a new amendment is needed, show the modifications to the **model code** by underlining all added language and striking through all deleted language.

Code(s) 2024 IFC&IBC, WAC 51-50-0504 Section(s) 903.2.8.4 (NEW) & 903.2.8.5(NEW), IBC TABLE 504.3 Allowable Building Height in Feet Above Grade Plane, IBC TABLE 504.4 Allowable Number of Stories Above Grade Plane

Add new text as follows:

IBC

903.3.1.3 Automatic Sprinkler Systems installed in one- and two- family dwellings; Group R-3; Group R-4, Condition 1; and *townhouse units* shall be permitted to be installed throughout in accordance with NFPA 13D

IFC

903.3.1.3 903.3.1.3 Automatic Sprinkler Systems installed in one- and two- family dwellings; Group R-3; Group R-4, Condition 1; and *townhouse units* shall be permitted to be installed throughout in accordance with NFPA 13D

2024 International Building Code

Modify existing WAC 51-50-0504 as follows:

TABLE 504.3 ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE^a

Portions of table not shown remain unchanged.

OCCUPANCY CLASSIFICATION	See Footnotes	TYPE OF CONSTRUCTION																						
		Type I		Type II		Type III		Type IV				Type V												
		A	B	A	B	A	B	A	B	C	HT	A	B											
R ^h	NS ^d	UL	160	65	55	65	55	65	65	65	65	65	50	40										
	S13D	60	60	60	60	60	60	60	60	60	60	60	50 ^j	40 ⁱ										
	S13R	60	60	60	60	60	60	60	60	60	60	60	60	60										
	S	UL	180	85	75	85	75	270	180	85	85	70	60											

For SI: 1 foot = 304.8 mm.

UL = Unlimited; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an

automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

- a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
- b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
- c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.
- d. The NS value is only for use in evaluation of existing building height in accordance with the *International Existing Building Code*.
- e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies Condition 1, see Exception 1 of Section 903.2.6.
- f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and with Section 1103.5 of the *International Fire Code*.
- g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.
- h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.
- i. I-1, Condition 2 Assisted living facilities licensed in accordance with chapter 388-78A WAC and residential treatment facilities as licensed by Washington state under chapter 246-337 WAC shall be permitted to use the allowable height above grade plane for Group R-2 occupancies
- j. For one- and two-family dwellings and *townhouse units*, the height shall be permitted to be increased to 60 feet.

TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE^{a, b}

Portions of table not shown remain unchanged.

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION														
	See Footnotes	Type I		Type II		Type III		Type IV				Type V			
		A	B	A	B	A	B	A	B	C	HT	A	B		
R-2 ^h	NS ^d	UL	11	4	4	4	4	4	4	4	4	3	2		
	S13R	4	4	4	4	4	4	4	4	4	4	4	3 ^j		
	S	UL	12	5	5	5	5	18	12	8	5	4	3		
R-3 ^h	NS ^d	UL	11	4	4	4	4	4	4	4	4	3	3		
	S13D	4	4											3 ^j	3 ^j
	S13R	4	4											4	4

	S	UL	12	5	5	5	5	18	12	5	5	4	4
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UL = Unlimited; NP = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

- a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
- b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
- c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.
- d. The NS value is only for use in evaluation of existing building height in accordance with the *International Existing Building Code*.
- e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.
- f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the International Fire Code.
- g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.
- h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.
- i. Group I-1, Condition 2 Assisted living facilities licensed in accordance with chapter 388-78A WAC and residential treatment facilities as licensed by Washington state under chapter 246-337 WAC shall be permitted to use the allowable number of stories for Group R-2 occupancies.
- j. For one- and two-family dwellings and townhouse units, the number of stories above grade plane shall be permitted to be increased to 4.

5. Briefly explain your proposed amendment, including the purpose, benefits and problems addressed.

When a one-and two-family dwelling or townhouse falls out of the scoping of the International Residential Code because it is 4 stories, one-and two-family dwellings become Group R-3 occupancies and a townhouse becomes a Group R-2 occupancy under the International Building Code. This one- or two-family dwelling or townhouse should be allowed to be built to 4 stories or 60 feet in height without having to change the automatic fire sprinkler system from a NFPA13D to NFPA13R which is required per Table 503.4 and 503.4 of the IBC. NFPA 13D does not have a height or story restriction and this is based on the type of hazard being protected. Footnotes were added to address these specific issues and additional sections in 903.2.8 were added for additional clarification for the existing footnote h and IBC Section 420.4.

Jeff Shapiro’s code change proposal (9491) for the 2027 IBC regarding the proposed changes to the IBC Tables is similar to this proposal. I have included his reasoning for additional justification.

“Although I serve as a consultant to the National Fire Sprinkler Association, this proposal has not been reviewed or endorsed by NFSA, and I am not representing NFSA on this issue.

Recommended changes are supported on the basis of:

- 1. Improved correlation between the IRC and IBC with respect to limits on Type V-B construction,
- 2. Empirical evidence supporting the effectiveness of NFPA 13D sprinkler systems in controlling and extinguishing dwelling fires that was not available when the IBC originally considered story/height credit for Group R3 more than 25 years ago.

1. IRC Correlation: Following approval of Proposal RB17-07/08, which added an allowance for habitable attics to the 2009 IRC, the IRC has continued to expand the habitable attic concept to the point where it essentially constitutes a 4th story, even though the code is technically limited to 3-story construction. Proposal RB166-16 eliminated a prior restriction requiring the ceiling of a habitable attic to be limited to rafters/roof framing, so lacking restrictions on the height of surrounding knee walls or dormer size, the 2018 and 2021 IRC editions pretty much equated habitable attics to stories. Proposal RB152-19 called attention to the IRC 4th story habitable attic loophole, with the intent of pushing such construction back to the IBC, but that proposal was later modified to instead place a size limit on habitable attics and require NFPA 13D fire sprinklers when a habitable attic is placed above the third story. Today, standing outside of a newly constructed dwelling with a habitable attic above the third story, you'd be looking at what appears to be a 4-story unlimited height (in feet) Type V-B building, protected by a NFPA 13D sprinkler system, that meets the IRC. It makes no sense for the IBC to not allow Type V construction or require changing to a NFPA 13R sprinkler system to construct a similarly configured Group R3 building.

2. Performance of residential sprinkler systems: Since the question of NFPA 13D performance was previously considered in the code arena, a considerable number of NFPA 13D sprinkler systems have been installed throughout the U.S., and there have been a considerable number of fires in structures protected by NFPA 13D systems, enough to provide meaningful data regarding the effectiveness of these systems in controlling and extinguishing dwelling fires. An analysis of data captured by the National Fire Incident Reporting System shows that in more than 2,500 fire incidents in the period 2000-2022 where sprinklers operated and were effective, presumably NFPA 13D systems considering that the data is associated with one- and two-family dwelling fires, fire spread was limited to the object or room of origin in 87% of fires, and up to the story of origin in a total of 92% of fires. This seems sufficiently equivalent to the effectiveness of NFPA 13 and NFPA 13R systems to justify receiving similar height/story incentive for one- and two-family dwellings and townhouses.

It is noteworthy that the ICC has already rendered favorable consideration of some incentives for NFPA 13D sprinkler systems, so this proposal is not plowing entirely new ground. For example, IBC Section 1031.2, Exception 5 (which recognizes NFPA 13D for a means of escape incentive); IFC Section 1205.2.1.3 (which allows a reduction of required setbacks for PV systems on roofs); IFC Appendix Table B105.1(1) (which allows a reduction in required fire flow); IFC Appendix Section D107.1 (which allows a reduction in the required number of fire apparatus access roads); IRC Section R309.5 [2021 edition] (which per reference to Table R302.1(2) equates sprinkler protection to a 1-hour exterior wall and property line separation for wall penetrations and openings); among others.”

6. Specify what criteria this proposal meets. You may select more than one.

- The amendment is needed to address a critical life/safety need.
- The amendment clarifies the intent or application of the code.
- The amendment is needed to address a specific state policy or statute.
- The amendment is needed for consistency with state or federal regulations.
- The amendment is needed to address a unique character of the state.
- The amendment corrects errors and omissions.

7. Is there an economic impact: Yes No

If no, state reason: This amendment will decrease the cost of construction.

“Since similar construction is already permitted under the IRC, adding the recommended provisions to the IBC is not a significant change with respect to the ICC code family.

Estimated Immediate Cost Impact Justification (methodology and variables):

If yes, provide economic impact, costs and benefits as noted below in items a – f.

- a. *Life Cycle Cost.* Use the OFM Life Cycle Cost [Analysis tool](#) to estimate the life cycle cost of the proposal using one or more typical examples. Reference these [Instructions](#); use these [Inputs](#). Webinars

on the tool can be found [Here](#) and [Here](#)). If the tool is used, submit a copy of the excel file with your proposal submission. If preferred, you may submit an alternate life cycle cost analysis.

- b. **Construction Cost.** Provide your best estimate of the construction cost (or cost savings) of your code change proposal.

\$Click here to enter text./square foot

(For residential projects, also provide \$Click here to enter text./ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

- c. **Code Enforcement.** List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:
- d. **Small Business Impact.** Describe economic impacts to small businesses:
- e. **Housing Affordability.** Describe economic impacts on housing affordability:
- f. **Other.** Describe other qualitative cost and benefits to owners, to occupants, to the public, to the environment, and to other stakeholders that have not yet been discussed:

Please send your completed proposal to: sbcc@des.wa.gov

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.