

RB66-07/08

R101.2, R301.1.3.1 (New), R313 (New), R317.2, R317.2.4, R310.1, AP102 (New), Chapter 43 (New)

Proposed Change as Submitted:

Proponent: Rick Morris, AvalonBay Communities, Inc.

1. Revise as follows:

R101.2 (Supp) Scope. The provisions of the *International Residential Code for One- and Two-family Dwellings* shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above-grade in height with a separate means of egress and their accessory structures.

The provisions of this Code shall also apply to the construction, alteration, enlargement and replacement of townhouses not more than 4 stories above grade plane that are equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13D.

Exception: Live/work units complying with the requirements of Section 419 of the *International Building Code* shall be permitted to be built as one- and two-family dwellings or townhouses. Fire suppression required by Section 419.5 of the *International Building Code* when constructed under the *International Residential Code for One- and Two-family Dwellings* shall conform to Section 903.3.1.3 of the *International Building Code*.

2. Add new text as follows:

R301.1.3 Engineered design. When a building of otherwise conventional construction contains structural elements exceeding the limits of Section R301 or otherwise not conforming to this code, these elements shall be designed in accordance with accepted engineering practice. The extent of such design need only demonstrate compliance of nonconventional elements with other applicable provisions and shall be compatible with the performance of the conventional framed system. Engineered design in accordance with the *International Building Code* is permitted for all buildings and structures, and parts thereof, included in the scope of this code.

R301.1.3.1 Townhouses four stories above grade plane. For structural design of townhouses four stories above grade plane, the structural provisions of the *International Building Code* for Group R-3 shall apply

3. Rename section and add new R313.1 as follows:

R313 **FIRE PROTECTION SYSTEMS AND SMOKE ALARMS**

R313.1 Fire protection systems. An approved automatic fire sprinkler system shall be installed in new townhouses in accordance with NFPA 13D, except as follows:

1. Where townhouses have separation walls designed based on R317.2, Exception 2, sprinklers shall be provided to protect exterior combustible balconies, decks, porches and ground floor patios located under such combustible projections. Exterior sprinklers and supply piping shall be protected from freezing where freeze protection is required by P2603.6. Where sidewall sprinklers are installed beneath exposed wood joists, sprinklers shall be permitted to be installed with deflectors located 1 inch (25 mm) to 6 inches (152 mm) below the joists, not to exceed a maximum distance of 14 inches (356 mm) below the deck.
2. Where townhouses with private garages have separation walls designed based on R317.2, Exception 2, fire sprinkler protection shall be provided in the garage. Sprinklers in garages shall be connected to a system that complies with NFPA 13D. Garage sprinklers shall be residential sprinklers or quick-response sprinklers, designed to provide a density of 0.05 gpm/ft². Garage doors shall not be considered as obstructions with respect to sprinkler placement.

(Renumber subsequent sections)

4. Revise as follows:

R317.2 Townhouses. Each townhouse shall be considered a separate building and shall be separated by fire-resistance-rated wall assemblies meeting the requirements of Section R302 for exterior walls.

Exceptions:

1. A common 2-hour fire-resistance-rated wall is permitted for townhouses if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. Electrical installations shall be installed in accordance with Chapters 33 through 42. Penetrations of electrical outlet boxes shall be in accordance with Section R317.3.
2. A common 1-hour fire-resistance rated wall is permitted for townhouses equipped throughout with an automatic sprinkler system installed in accordance with R313.1. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Where roof surfaces adjacent to the wall are at different elevations, the rated wall shall continue to the upper roof sheathing.

5. Revise as follows:

R317.2.4 Structural independence. Each individual townhouse shall be structurally independent.

Exceptions:

1. Foundations supporting exterior walls or common walls.
2. Structural roof and wall sheathing from each unit may fasten to the common wall framing.
3. Nonstructural wall coverings.
4. Flashing at termination of roof covering over common wall.
5. Townhouses separated by a common ~~2-hour~~ fire-resistance-rated wall as provided in Section R317.2.

6. Revise as follows:

R310.1 (Supp) Emergency escape and rescue required. Basements and every sleeping room shall have at least one operable emergency escape and rescue opening. Such opening shall open directly into a public street, public alley, yard or court. Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room. Where emergency escape and rescue openings are provided they shall have a sill height of not more than 44 inches (1118 mm) above the floor. Where a door opening having a threshold below the adjacent ground elevation serves as an emergency escape and rescue opening and is provided with a bulkhead enclosure, the bulkhead enclosure shall comply with Section R310.3. The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. Emergency escape and rescue openings with a finished sill height below the adjacent ground elevation shall be provided with a window well in accordance with Section R310.2. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.

Exceptions:

1. Basements used only to house mechanical equipment and not exceeding total floor area of 200 square feet (18.58 m²).
2. In dwelling units equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13D.

7. Add new text as follows:

AP102 Fire flow. The fire-flow requirements for townhouses specified by IFC Appendix B, where adopted, shall be permitted to be reduced by 75% for buildings equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13D.

Reason: This proposal would add a requirement for residential sprinkler systems to be installed in all new townhouses constructed under the *International Residential Code*, and it includes a package of sprinkler incentives that will help offset the added cost of sprinklers, as well as improve design flexibility. If a reasonable package of incentives can be offered by the code, it simply makes sense for multifamily developers to provide these systems to protect new townhouses.

It is well known that sprinklers are the best tool for providing firesafety in residential occupancies, and the concept of the code providing incentives to encourage the use of these systems in residential occupancies is already in use in the IBC. In fact, the IBC's incentive package provided a basis for major multifamily builders to not oppose the IBC requirement for all residential occupancies to be sprinklered when that issue was considered several years ago.

By accepting this code change, sprinkler protection for townhouses would become reasonably affordable to the builders who build townhouses and to the homeowners who buy them. As a result, we could take a significant step forward in improving life safety and reducing property losses in residential occupancies for decades to come.

The following is an explanation of each new proposed section relating to this sprinkler alternative for dwellings:

1. *Revise Section R101.2:* Typical townhouse construction is no more than 4 stories above grade plane. Presently when a developer goes from 3 to 4 stories above grade, the project is then required to be designed under the IBC. Covering townhouses up to 4 stories above grade plane in the IRC provides a significant incentive for developers. The impact on 4-story buildings would be significant enough to warrant installing sprinklers in 2- and 3-story buildings, which will gain far less benefit from this change, when one considers the overall package. The overall gain of having all townhouses equipped with fire sprinklers makes the allowance of 4-story townhouses under the IRC a worthwhile investment in safety.
2. *Add new Subsection R301.1.3.1 to the "Engineered design" requirement.* This new subsection will address the structural design requirements for townhouses built under the IRC that are 4 stories above grade. The existing structural requirements in the IRC are based on a maximum 3 stories above grade, and by referencing the IBC, proper design is assured.
3. *Rename Section R313 and add new Section R313.1:* This provides a charging requirement for providing residential sprinklers in accordance with NFPA 13D for townhouses. The two exceptions deal with issues not addressed by NFPA 13D, one is outside combustible decks and the other is private garages. The combustible deck sprinkler requirement is consistent with a similar provision to IBC Section 903.3.1.2.1, "Balconies and decks". Most likely a dry sidewall sprinkler supplied by a wet pipe sprinkler system would be used to comply with this exception. The garage sprinkler criteria are based on NFPA 13R Section 6.8.3.3. Dry pendent sprinklers supplied by a wet pipe sprinkler system would most likely be used to protect garages.
4. & 5. *Add new Exception#2 to R 317.2 and revise Exception #5 to R317.2.4:* This is a similar one hour exception that was in BOCA Code Section 310.5 Exception #2 for multiple single-family dwellings. That section of Code read: "In multiple single-family dwellings that are equipped throughout with an approved automatic sprinkler system installed in accordance with Section 906.2.3 (NFPA 13D), the fire-resistance rating between each dwelling unit shall not be less than 1 hour and shall be constructed as a fire partition."
6. *Add new Exception to Section R310.1:* The IRC already allows elimination of escape windows in Groups R-1, R-2, R-4 and I-1 occupancies (IBC Section 1026, Exception 1) based on the installation of fire sprinklers. NFPA Life Safety Code, also contains an NFPA 13D related exception to the escape window requirement for one- and two-family dwellings in Section 24.2.2.1.2(2).
7. *Revise Appendix P101:* The reduction in fire flow is similar to allowances granted by the IFC.

Cost Impact: The code change proposal may increase or decrease the cost of construction, depending on the value of sprinkler incentives versus the cost of adding sprinklers to a particular building.

Analysis: Review of proposed new standard NFPA 13D-07 indicated that, in the opinion of ICC Staff, the standard did comply with ICC standards criteria.

Committee Action:

Disapproved

Committee Reason: The committee felt that there was insufficient effective or substantial reason to move the sprinkler requirements out of Appendix P where it is now. The committee agreed that if the code is going to mandate sprinklers for new construction that is should apply to all structures in the scope of the International Residential Code not just townhouses in a piecemeal approach. The issues of fire flow and not wanting a direct reference to the International Fire Code were also issues in the committee's decision.

Assembly Action:

None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

George Martin, Howard County, Department of Licenses & Permits, representing Maryland Building Officials Association (MBOA), requests Approval as Modified by this Public Comment.

Steven L. McDaniel, CPCA, New York State Building Officials Conference, requests Approval as Modified by this Public Comment.

Rick Morris, AvalonBay Communities, Inc., requests Approval as Modified by this Public Comment.

Replace proposal as follows:

1. Add new section as follows:

R313 **FIRE SPRINKLER SYSTEM FOR TOWNHOUSES**

R313.1 Townhouse Fire Sprinklers. An automatic residential fire sprinkler system shall be installed in townhouses.

Exception: A sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have a fire sprinkler system installed.

R312.2 Design and installation. Automatic residential fire sprinkler systems for townhouses shall be designed and installed in accordance with P2904.

(Renumber subsequent sections)

2. Modify AP101 as follows:

AP101 Fire sprinklers. An approved automatic fire sprinkler system shall be installed in new one-and two-family dwellings ~~and townhouses~~ in accordance with P2904 NFPA 13D.

3. Modify exception as follows:

R317.2 Townhouses. Each townhouse shall be considered a separate building and shall be separated by fire--resistance-rated wall assemblies meeting the requirements of Section R302 for exterior walls.

Exception: A common 2 1-hour fire-resistance rated wall is permitted for townhouses if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be installed in accordance with Chapters 33 through 42. Penetrations of ~~electrical outlet boxes~~ shall be in accordance with Section R317.3.

4. Modify exception 5 as follows:

R317.2.4 Structural independence. Each individual townhouse shall be structurally independent.

Exceptions:

1. Foundations supporting exterior walls or common walls.
2. Structural roof and wall sheathing from each unit may fasten to the common wall framing.
3. Nonstructural wall coverings.
4. Flashing at termination of roof covering over common wall.
5. Townhouses separated by a common 2 1-hour fire-resistance-rated wall as provided in Section R317.2.

Commenter's Reason (Martin): In 1989 the State of Maryland enacted House Bill 658, "Sprinkler Systems – Installation in New Construction", that required dormitories, hotels, lodging or rooming houses, multifamily residential dwellings **and townhouses** to be sprinklered. Therefore, since 1990, townhouses in Maryland have been sprinklered and being so has not been detrimental to the homebuilding industry, but has been a major success to saving lives over the past 18 years.

To address reasonable fire protection and affordable housing, many Maryland jurisdictions over the years have permitted townhouse separation of one hour with sprinklers installed in accordance with NFPA 13D. Therefore, based on our past success with sprinklered townhouses with one hour separations between the townhouses, MBOA is in support of mandatory sprinklers in townhouses with one hour dwelling unit separations.

The modifications in Items #1 & #2 will coordinate the IRC Committee approved Code Proposal RP3-07/08 (the prescriptive sprinkler design criteria that is now being placed in the body of the IRC) with this code change.

Commenter's Reason (McDaniel): Our Building Officials Association believes that fair and reasonable sprinkler package should be provided in the IRC to encourage the installation of residential sprinkler systems in townhouse in the IRC. This public comment provides a good beginning with a sprinkler alternative that we believe meet these criteria.

To address reasonable fire protection and affordable housing, many other jurisdictions throughout the country over the years have permitted townhouse separation of one hour with sprinklers installed in accordance with NFPA 13D. Therefore, based on these past successes with sprinklered townhouses with one hour separations between the townhouses, our building officials association is in support of mandatory sprinklers in townhouses with one hour dwelling unit separations.

The modifications in Items #1 & #2 will coordinate the IRC Committee approved Code Proposal RP3-07/08 (the prescriptive sprinkler design criteria that is now being placed in the body of the IRC) with this code change.

Commenter's Reason (Morris) AvalonBay originally submitted RB66-07/08 because we believe that a fair and reasonable sprinkler package should be provided in the IRC to encourage the installation of residential sprinkler systems in townhouses in the IRC. Contrary to the Committee's published reason for disapproval of RB66, there are numerous state and local building code amendments to the IRC throughout the U.S. where townhouses are require to be sprinklered, whereas detached single family homes are not, because it is considered the "first step" in eventually getting all residential uses sprinklered. In fact, even though the committee also disapproved RB65 for the same reason as this code proposal (RB66), there was an assembly vote on RB65 and it passed, over the disapproval of the committee. Therefore, clearly the ICC membership does see merit in the rationale for mandatory sprinkling of townhouses.

This public comment simplifies the original RB66. It provides a good beginning for a townhouse sprinkler requirement that AvalonBay believes would meet code officials' and townhouse builders/developers' criteria as fair, reasonable and economical.

To address reasonable fire protection and affordable housing, many other jurisdictions throughout the country over the years have permitted townhouse separation of one hour with sprinklers installed in accordance with NFPA 13D. Therefore, based on these past successes with sprinklered townhouses with one hour separations between the townhouses, AvalonBay is in support of mandatory sprinklers in townhouses with one hour dwelling unit separations.

The modifications in Items #1 & #2 will coordinate the IRC Committee approved Code Proposal RP3-07/08 (the prescriptive sprinkler design criteria that is now being placed in the body of the IRC) with this code change.

Final Action: AS AM AMPC____ D
