

September 1, 2004 (By E-mail with signed copy to James Lee Witt)

James Lee Witt, CEO
International Code Council
5203 Leesburg Pike, Suite 600
Falls Church, VA 22041

CC: Anne vonWeller, Frank Hodge, Tom Frost, Paul Armstrong, John Battles

Reference: IFC Interpretation No. 43-03, dated 8-11-2004

Dear Mr. Witt:

On behalf of NMHC/NAA, I would like to thank the ICC Board for its quick action in issuing the indefinite stay on the implementation of *IFC Interpretation No. 43-03*, concerning Chapter 9, *Section 903.3.1.2 NFPA 13R sprinkler systems*. With this letter, NMHC/NAA are appealing the ICC-issued interpretation (below). In its place, we are asking the ICC to consider our proposed interpretation, also provided below. The reasons for our request are documented herein with information from the IBC, staff interpretations and other information that may not have been available to the interpretations committee. Most important are the informal interpretations from staff (BOCA and NFPA) and an article from the August 2004 *Sprinkler Age* magazine included as attachments #1 and #2.

Attachments #3 and #4 include lists of affected parties (NMHC and NAA members) submitted in accordance with the appeal requirements. In that ICC is working with NMHC/NAA to resolve the issue and the leadership of NMHC/NAA have been notified, it is suggested that notices of the appeal not be sent to list #3 and #4 at this time. Attachment #5 is a list of parties that may be interested in the appeal, and they should be notified in accordance with ICC procedures.

IFC Interpretation No. 43-03 (Issued on August 11, 2004 by the ICC):

Section 903.3.1.2 NFPA 13R sprinkler systems. Where allowed in buildings of Group R, up to and including four stories in height, automatic sprinkler systems shall be installed throughout in accordance with NFPA 13R.

Q: *Is an NFPA 13R sprinkler system permitted in a Group R occupancy where four stories of the building are located above grade plane and one story is located below grade plane?*

ICC Interpretation response:

A: No. The provisions in *Section 903.3.1.2* limits the use of an NFPA 13R as an approved system for use in Group R buildings up to and including four stories in height. For the purpose of determining the applicability of an NFPA 13R sprinkler system a story located below grade plane is considered a story and must be accounted for when determining the total number of stories in a building. There are no provisions in *Section 903.3.1.2* addressing building height, see definition, as a condition for approval of an NFPA 13R sprinkler system, only the number of stories. A story can be located wholly or partially above or below grade plane.

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NMHC/NAA Proposed Alternative Interpretation:

A: Yes. The definition of Building Height – the vertical distance from grade plane to the average height of the highest roof surface – establishes the grade plane as the reference point for determining building height and number of stories. *Section 503* and *Table 503* establish the maximum building height and number of stories permitted for all occupancies above the grade plane. The maximum number of stories and building height in *Table 503* can be modified as permitted by *Section 504.2, Automatic sprinkler increases*, when a sprinkler system is installed throughout in accordance with NFPA 13R. With the modification in *Section 504.2* the building above the grade plane can be four stories provided the overall building height does not exceed 60 feet, measured to the average height of the highest roof surface. The type of occupancy permitted in the basement, including residential, is not controlled by the Code provided the basement is separated from the residential portions of the building in accordance with the mixed-use provisions of the Code. S-2 occupancies can also be installed in the lower level of an R occupancy if they comply with the requirements of *Section 508*. The lower level, or basement, of the building must comply with the Code definition for basement.

This NMHC/NAA-suggested response is intended to comply with the Code provisions that establish the definitions of grade plane, basement, and building height. It also complies with the Code provisions in *Section 503, General Height and Area Limitations* as modified by *Section 504.2, Automatic sprinkler system increase*.

IFC Interpretation No. 43-03 is incorrect for the following reasons:

1. It conflicts with the IBC provisions for determining the building height and number of stories, applying a different set of criteria for an NFPA 13R sprinkler system than is permitted and used for all other building height and number of stories allowed for all other applications of the Code.
2. It does not use the grade plane as the reference point for determining building height and number of stories.
3. It is in direct conflict with:
 - Section 502 Definitions, Building Height;*
 - Section 503 General Height and Area Limitations;*
 - Section 504.2 Automatic sprinkler system increase;* and
 - Section 508 Special Provisions, specifically:*
 - Sections 508.2 Group S-2 enclosed parking garage with Group A, B, M or R above;*
 - Section 508.4 Parking beneath Group R;* and
 - Section 508.7 Open parking garage beneath Groups A, I, B, M and R.*
4. It does not conform to informal interpretations issued by ICC and NFPA (copies attached);
5. It does not agree with the position taken by the American Fire Sprinkler Association (AFSA) (copy attached);
6. It does not conform to the action of the ICC Code Development Committee;
7. It conflicts with historical applications allowed for NFPA 13R sprinkler systems;
8. It represents a change in the Code that is best addressed in the Code Development process;
9. It was made without any consideration to the excellent history of buildings that are protected with NFPA 13R sprinkler systems;
10. It was made without any input from the parties directly impacted by the interpretation.

Interpretation No. 43-03 does not advance any life safety issue, but does create a major problem for multifamily and other R occupancies that have traditionally used 13R sprinkler systems in buildings up to four stories in height above grade.

First, there is no data – fire or other – to support the restriction imposed by *IFC Interpretation No. 43-03*. In fact, these buildings have an outstanding fire history. Almost all fires in buildings equipped with NFPA

13R sprinkler systems are controlled by the activation of a single sprinkler head. Furthermore, after several years of tracking fires in apartment buildings with NFPA 13R sprinkler systems, Operation Life Safety (OLS) found no deaths in these properties. This led them to conclude that there are no safety issues or concerns related to the use of the NFPA 13R sprinkler system.

Interpretation No. 43-03 is also in direct conflict with past and current Code provisions as well as common construction practices. This interpretation will have a major impact not only on multifamily projects in the design phase, but also on a great number of projects that have already been approved and are under construction.

Finally, *Interpretation No. 43-03* will also adversely affect the apartment industry's ability to provide affordable housing. We estimate it will cost \$1,800 per apartment unit (\$1.75 to \$2.00 per square foot) to implement this interpretation. This would result in an industry-wide cost of up to \$120 million, which will ultimately have to be passed onto the consumer.

We are particularly concerned that an interpretation of this magnitude was promulgated without prior hearings. Any issue this far reaching should be handled through the Code development process and not through an interpretation. As it is, the Code Development Committee has previously rejected proposals that were similar to *Interpretation No. 43-03*.

Grade Plane Issue. The IBC establishes that building height and number of stories are measured from the grade plane (*Definition of Building Height, Section 502*). No Code provisions require a different calculation of building height or stories for a sprinklered building than for a building without sprinklers. In fact, as demonstrated below, the Code specifically establishes that when an NFPA 13R sprinkler system is installed, the height and number of stories permitted are controlled by a measurement from the building grade plane.

Sections 503, 508.2, 508.4 and 508.7 distinctly establish building height and number of stories based on the building grade plane.

Table 503 – Allowable Height and Building Areas. Chapter 5 clearly establishes that the allowable height and area of a building is to be measured from the grade plane as defined in *Section 502*. Indeed, the subtitle of *Table 503* is “*Height limitations shown as stories and feet above grade plane*” (emphasis added). The definition of Building Height included in *Section 502*--“The vertical distance from grade plane to the average height of the highest roof surface”--establishes the basis for determining the building height and the number of stories permitted in accordance with *Section 503 (General Height and Area Limitations)* and *Table 503 – Allowable Height and Building Areas*. *Section 503* specifically states that the height, number of stories and area for buildings of different construction types shall be governed by the intended use of the buildings and shall not exceed the limitations in *Table 503* except as modified hereafter (by the Code). *Section 503*, in conjunction with the definition of Building Area, specifically establishes that the building height, area and number of stories permitted are to be determined based on the location of the building grade plane. There are no modifications in the Code specifying that the height and number of stories permitted should be measured differently if a building has an NFPA 13R sprinkler system.

From *Table 503*, and in accordance with the above, an R-2 occupancy of Type VA construction is permitted to be three (3) stories above the grade plane, provided the overall height does not exceed 50 feet. An R-2 occupancy of Type VB is permitted to be two (2) stories above the grade plane, provided the overall height does not exceed 40 feet. *Section 504.2 – Automatic sprinkler system increase*, a modification permitted by *Section 503*, increases the allowable height and number of stories permitted when sprinkler systems are installed. With the installation of a 13R sprinkler system, *Section 504.2* specifically allows the building height and number of stories permitted in *Section 503* and *Table 503* to be increased by one story and 20 feet, provided the overall building height does not exceed 60 feet. This

explicitly allows a four-story building equipped throughout with an NFPA 13R sprinkler system installed in accordance with Section 903.3.1.2 to go four stories above grade.

Section 508.2 – Group S-2 enclosed parking garage with Group A, B, M or R above. Section 508.2 specifically states in the first sentence that the “basement and/or the first story above grade plane of a building shall be considered as a separate and distinct building for the purpose of determining...**limitation of number of stories...**” (emphasis added).

Section 508.4 – Parking beneath Group R.

Section 508.4 clearly permits a four-story building with a 13R sprinkler system above an S-2 parking garage (total five stories above the grade plane). Section 508.4 specifically states that the number of stories permitted for the Group R occupancy above the S-2 parking garage is to be measured from the floor above the S-2 parking garage. The parking garage is also allowed to be one story above the grade plane with an at-grade entrance.

Based on the provisions of Section 508.4, and the allowable stories permitted by Table 503 as modified by the automatic sprinkler system (height and story) increase allowed by Section 504.2, a Type VA, R occupancy with a 13R sprinkler system installed in accordance with Section 903.3.1.2 would be permitted to have four stories above the S-2 parking garage, provided the overall height of the structure did not exceed 60 feet measured from grade plane to the average height of the highest roof surface.

This section shows that the Code accepts the concept of NFPA 13R in a five-story building. As an S-2 use group is considered a higher hazard classification than R-2, it seems illogical that NFPA 13R sprinklers are allowed in this condition but are not allowed in a Group R occupancy type per the original question that led to IFC Interpretation No. 43-03.

Section 508.7 – Open parking garage beneath Groups A, I, B, M and R.

Section 508.7 also establishes that the height and number of stories permitted are based on the location of the building grade plane. In addition, Section 508.7 explicitly states that the height in both feet and stories of the portion of the building above the open parking garage shall be measured from the grade plane.

Using the same example that used in the discussion with Section 508.4 and the allowable stories permitted by Table 503 as modified by the automatic sprinkler (height and story) increase allowed by Section 504.2, a Type VA, R occupancy with a 13R sprinkler system installed in accordance with Section 903.3.1.2 would be permitted to have four stories above the S-2 parking garage.

The ICC Code Development Committees have addressed the issue of allowable stories permitted with an NFPA 13R sprinkler systems during the IBC development phase and during subsequent Code hearings. The provisions in Section 503, 508.2, 508.4 and 508.7 are a direct result of those Code hearing deliberations. In addition, proposals to change other sections and provisions of the Code that would have limited the used of NFPA 13R sprinkler systems, as directed by the interpretation, have already been defeated during these Code deliberations.

Conclusion

Interpretation No. 43-03 is troubling for several reasons. First, it establishes a new definition for “story” that applies only to one particular circumstance—i.e., where an NFPA 13R system is used in a story below grade plane in a Group R occupancy.

Further, it incorrectly states “There are no provisions in Section 903.3.1.2 addressing building height.”

The Code in question clearly refers to "four stories in height." While the section doesn't address height in feet, it is generally accepted that--particularly in conditions covered by sprinklers--fire safety is more directly affected by the number of occupied floors than the actual height in feet of the floors or buildings. Further, this section of the Code does not need to specifically define building height since it is already covered quite extensively in Chapter 5.

Attached are copies of letters and informal staff interpretations that have been issued on how many stories are permitted with the use of the NFPA 13R sprinkler system. Note, in addition to the informal staff interpretations from ICC (former BOCA staff), there is also an informal interpretation from NFPA stating that the NFPA 13R sprinkler system is designed to be used in buildings with four stories above grade and a basement. The position taken by the informal interpretations is further supported by a recent article in *Sprinkler Age* magazine (August 2004) by Phil Brown, Manager of Codes, AFSA (copy attached).

Buildings with four stories above grade plane and a basement and protected with an NFPA 13R sprinkler system have been designed, reviewed and constructed for many years. During this process, they have been reviewed by knowledgeable plan reviewers and accepted as complying with the Codes. For the ICC to reverse such a position through a formal interpretation after many years of accepting the building type is tantamount to acknowledging that there are many buildings which are not safe. If this is truly the case, then the ICC, NMHC/NAA and other industry groups should immediately start a formal notification process to remedy the situation.

I will be happy to discuss this issue with you at any time. If you prefer, we can set up a meeting to discuss the issues and concerns regarding *Interpretation No. 43-03*.

The National Multi Housing Council and the National Apartment Association represent the nation's leading firms participating in the multifamily rental housing industry. Our combined memberships are engaged in all aspects of the apartment industry, including ownership, development, management, and finance. The National Multi Housing Council (NMHC) represents the principal officers of the apartment industry's largest and most prominent firms. The National Apartment Association (NAA) is the largest national federation of state and local apartment associations. NAA is comprised of 164 affiliates and represents more than 31,505 professionals who own and manage more than five million apartments. NMHC and NAA jointly operate a federal legislative program and provide a unified voice for the private apartment industry.

Sincerely,

Ron Nickson
Vice President of Building Codes
NMHC/NAA Joint Legislative Program

Attachments:

1. Informal interpretations from BOCA and NFPA staff.
2. Article from August 2004 *Sprinkler Age* magazine by Phil Brown, Manager of Codes, AFSA.
3. Names and addresses of interested NMHC members.
4. Names and addresses of interested NAA members.
5. Names and addresses of other organizations and persons with a potential interest.