

Fire Sprinklers Shall Be Supported From Bldg. Structure

The Suspended Ceiling Exception Compromises This Philosophy

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This article addresses concerns regarding the 2007 Edition of NFPA 13 Chapter 9 Section 9.2.1.3.3. I want to further clarify that I believe Sections 9.2.1.3.3.2 and 9.2.1.3.3.3 specifically are contrary to the philosophy behind supporting the fire sprinkler system in the 2007 Edition of NFPA 13. Sections 9.2.1.3.3.2 and 9.2.1.3.3.3 create an exception to allow support of fire sprinklers from the suspended ceiling rather than the building structure. In the code/standard writing arena, writing criteria "by exception" should always be discouraged. By doing so, you are in fact making the parent section weaker. My thoughts are expressed in the following text and I hope those who read them understand my concerns regarding this problem.

I believe the NFPA 13 fire sprinkler system is the ultimate solution to the unacceptable consequences of fire. Its reliability is documented by over a century of superior performance. The NFPA 13 standard guarantees emergency system performance by mandating rigorous system component criteria. The standard's conservative engineering philosophy, promotes confidence among firefighters, AHJ's, contractors, their customers.

The philosophy of the 2007 Edition of Chapter 9 conforms to NFPA 13 by recognizing that fire sprinklers are an emergency system. The Chapter 9 tenets of support for fire sprinkler piping are based on conservative engineering assumptions requiring substantial support that are easy to understand, implement and enforce. Chapter 9 defines substantial support as solely appropriate and only possible when provided by the "building structure". Accordingly, substantial support guarantees reliable performance of the fire sprinkler system by enhancing its durability and thus its permanence. NEHRP and ASCE 7 together with the current editions of UBC, IBC and NFPA 5000 recognize and agree that the Chapter 9 philosophy and its methodology are essential to this emergency system.

I believe the "supported by suspended ceiling" exception in 9.2.1.3.3.2 and 9.2.1.3.3.3 does not conform to the Chapter 9 philosophy of substantial support provided by the building structure. The assumption of substantial support from the building structure is so important and so basic to the conservative engineering philosophy of Chapter 9 that it is in fact required in the 2007 editions of NFPA 13, 13R and even 13D. In my opinion, supporting a fire sprinkler from a non- structural component like the suspended ceiling is detrimental to the required reliability of an emergency system by reducing its durability and permanence.

I believe the logic germane to this stated exception in 9.2.1.3.3 requires further careful review. This exception solved "No stated problem" of support. No support problem exists because all system piping is installed above the suspended ceiling and supported from the building structure. I believe the Chapter 9 Technical Committee had no overriding reason to dismiss the philosophy of substantial support. Further, architectural components like suspended ceilings are subject to numerous revisions during their service life. Subsequent alteration and remodel by the building owner is common. Remodel construction commonly involves the removal of ceiling support wires. If further degradation of already limited support ability occurs it will be very problematic with potentially detrimental consequences. The "supported by suspended ceiling" exception in 9.2.1.3.3 will be ubiquitous involving a significant number of sprinkler heads supported by an architectural component.

In 2007, Chapter 9 revised its text to clearly specify that the NFPA 13 fire sprinklers are an emergency system with an importance factor of 1.5. Strict enforcement and adherence to NFPA 13 Chapter 9 conservative support tenets is necessary to justify the importance placed on the fire sprinkler system by current editions of UBC, IBC, NFPA 5000, ASCE 7, NEHRP, professional firefighters and the public. Conforming to this philosophy, I believe the Chapter 9 Technical Committee should **not** have authorized this exception. In light of the above, I believe that the NFPA 13 Chapter 9 Technical Committee should rescind this exception in 9.2.1.1.3 of the 2007 Edition.

This issue is a matter of "Fire and Life Safety", when one considers the historical record on the effectiveness of a properly designed, installed and maintained automatic fire sprinkler system. More importantly, there is increasing reliance by the "Model" Building and Fire Codes, which mandate the installation of fire sprinklers in our buildings/structures.

Now that Pandora's box is open – what is the basis for not allowing support by the suspended ceiling for numerous other light weight fire sprinkler piping products?

The following summarizes the appropriate philosophy.

"When product defines the standard, there is disorder; when the standard defines product, there is order."