

TechNotes Issue # 432

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The following issue of TechNotes has been prepared by Kevin Hall, P.E., NFSA's Manager of Engineering Research.

Hose Allowance

Where should the hose allowance be added in a sprinkler system? How much should be added? As is the case with most technical questions, the answer will depend on the specifics of the project. Luckily, NFPA 13-2019 has requirements for applying hose allowances in the hydraulic calculations concisely written in section 19.2.6. This TechNotes will discuss the various options that a designer has when applying hose allowances.

To determine the proper amount of flow to add for the hose allowance for non-storage applications, simply refer to Table 19.3.3.1.2:

Occupancy Hazard	Inside Hose (gpm)	Total Combined Hose (gpm)	Duration (min)
Light Hazard	0, 50, or 100	100	30
Ordinary Hazard	0, 50, or 100	250	60 or 90
Extra Hazard	0, 50, or 100	500	90 or 120

In general, the total allowance required for each individual hazard will be equal to the corresponding flow in the table above, although there is an instance where a lesser combined hose value can be utilized for small incidental occupancies.

Per NFPA 13-2019 section 19.2.6.1(3):

(3) For systems with multiple hazard classifications where the higher classification only lies within single rooms less than or equal to 400 ft sq (37 m sq) in area with no such rooms adjacent, the water supply requirements for the principal*

Upcoming Technical Tuesdays

February 18, 2020

2019 NFPA 14, Standard for the Installation of Standpipe and Hose Systems Updates

Presented by Terin Hopkins,
Public Fire Protection Specialist

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EOD Changes

The Expert of the Day (EOD) program will undergo some internal and external changes throughout 2020. For members who utilize this valuable member service, expect to see membership prioritizations, new subject matter experts, and increased online resources.



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occupancy shall be used for the remainder of the system.

For example, a typical stage (considered OH2 per NFPA 13-2019 section A.4.3.4) located in school would not be permitted to utilize 100 gpm for the total combined hose allowance even if its area is limited to 400 ft sq because it does not meet the ordinarily accepted meaning of a "room," but a classroom of the same size where woodworking is done would be permitted to utilize a 100 gpm total hose allowance for an ordinary hazard calculation as long as no other higher hazard areas are adjacent.

While the example above deals with the total combined hose, there is still a requirement for inside hose to be applied if hose connections are planned or required:

- 19.2.6.3** *Where inside hose connections are planned or are required, the following shall apply:*
- (1) *A total water allowance of 50 gpm (190 L/min) for a single hose connection installation shall be added to the sprinkler requirements.*
 - (2) *A total water allowance of 100 gpm (380 L/min) for a multiple hose connection installation shall be added to the sprinkler requirements.*
 - (3) *The water allowance shall be added in 50 gpm (190 L/min) increments beginning at the most remote hose connection, with each increment added at the pressure required by the sprinkler system design at that point.*

This section is the reason why Table 19.3.3.1.2 provides three options for inside hose requirements. It depends on the number of hose outlets required and installed in the building; however, there is one caveat to this provision:

- 19.2.6.3.1** *Where the system is a combined sprinkler/standpipe system (Class I or Class III) and the building is fully sprinklered in accordance with NFPA 13, no inside hose demand shall be required at any of the standpipe outlets.*

A sprinkler system having hose connections installed on a combined riser per NFPA 14 does not require the inside hose allowance to be taken at the standpipe outlets, only at additional outlets required by NFPA 13 or the AHJ. So, for a typical high-rise building utilizing a combined sprinkler/standpipe system, the entire combined hose allowance would be taken at the effective point of the water flow test used for the hydraulic calculation. Alternatively, inside hose allowance can be taken at the standpipe valves closest to the floor control valve assembly for the sprinkler system; however, the standpipe system demand is typically much greater than the sprinkler system



demand so there is little to no difference in the calculated demand which is why NFPA 13 excludes inside hose demand in section 19.2.6.3.1.

For additional references on hose stream demands, see TechNotes #274 and #275.

Changes to the Expert of the Day (EOD) Program 2020: Know the Code or Standard Edition

The NFSA EOD program is a valuable member benefit. Changes to this valuable program in 2020 are positive advancements to provide our members with the latest knowledge in a timely manner.

Please be aware of the following requirements of the EOD program:

- Via email: eod@nfsa.org
 - In the email subject line, please include the following: **code/standard and year of the edition**
 - Examples:
 - NFPA 13 2016
 - 2018 IBC
 - 2017 NFPA 25
 - When the EOD request is in the queue for processing an acknowledgment email reply will be sent.
- Via phone: (443) 438-1944
 - Please have the code/standard and edition information ready for the NFSA.

These changes assist our internal processes that assign the question to the correct SME. Having the code/standard edition noted in the email subject line increases the efficiency of our handling and tracking. Questions about the changes can be directed to Jeffrey M. Hugo, Director of Codes, Standards and Public Fire Protection at hugo@nfsa.org.

Did you know? The NFSA has subject matter experts (SMEs) in the Engineering and Code and Standards departments that represent the fire sprinkler industry in over 40 model codes and standards, such as NFPA, ICC, AWWA, UL, and more.

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Coordinating NFPA 25 & 72 ITM Requirements

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February 12 - 13, 2020
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