



Aisle Containment in Data Centers with Sprinkler Systems

GUIDEBOOK



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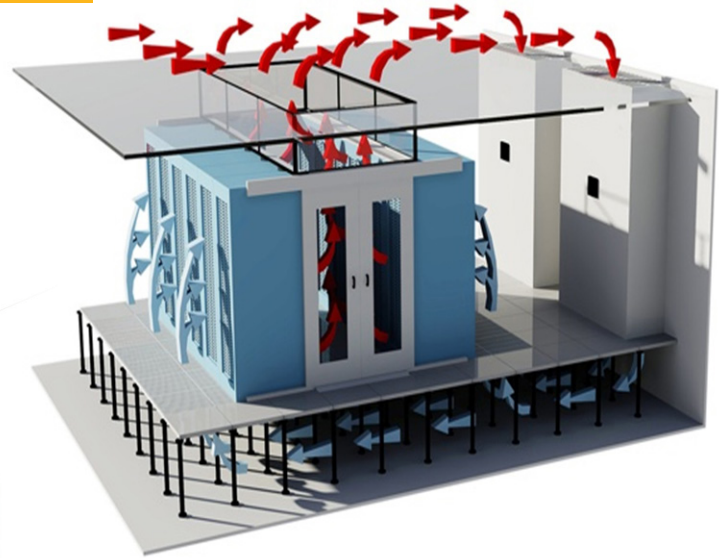
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FACT: Traditional Data Center/Telco designs are changing significantly!

Question:

Has your fire protection strategy changed?

If it hasn't, you probably have a problem... and it may be bigger than you think!



Sprinkler System Challenges

Minimizing Obstruction

Spray Patterns:

Are obstructions effecting the spray pattern requirements of NFPA 13?

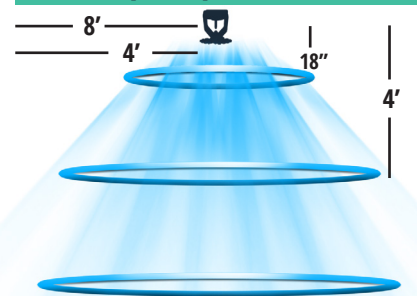
NFPA 13 gives requirements for handling obstructions

Obstructions to Sprinkler Discharge.

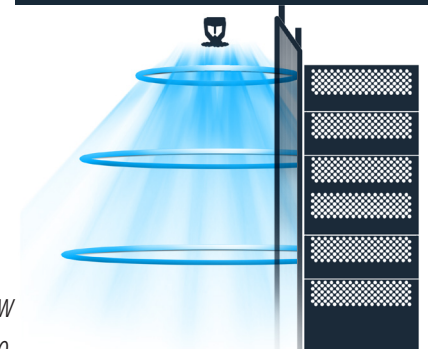
Sprinkler placement is a very important aspect of making sure air handling structure within a mission critical facility does not interfere with the ability of the sprinkler system to perform when called upon. Additional sprinklers may need to be considered in your design to adequately cover the area. Chapter 8 of NFPA 13 gives rules for handling obstructions.



Proper Sprinkler Pattern



Obstructed Sprinkler Pattern



For specific requirements, please review Chapter 8 in NFPA 13-2010.

Sprinkler System Challenges

Minimizing Obstruction

Spray Patterns:

Are obstructions preventing water from reaching the hazard?

Install Sprinklers underneath fixed obstructions

NFPA 13 (2019 Edition)

8.5.5.3.1 Sprinklers shall be installed under fixed obstructions over 4 ft (1.2 m) wide such as ducts, decks, open grate flooring, cutting tables, and overhead doors.

In the data center, cold aisle containment roofs often would be considered an obstruction, requiring sprinklers underneath them.



Cold Aisle Containment



Sprinkler System Challenges

Automatic Obstruction Removal

Automatic Obstruction Removal:

Are you certain the proposed automatic means of obstruction removal will have no impact on performance?

NFPA 75 (2020 Edition)

6.7.8.1* Sprinkler system modifications shall not be required where all of the following conditions are met...

NEW NFPA 75 Requirements

- Releasing devices are listed for the purpose
- Remove all obstructions for entire suppression zone
- Removal doesn't impact egress (per NFPA 101)
- Doesn't lower intended level of protection
- Removed by Smoke Detection



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