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What's in your cabinet?

Having a properly stocked and maintained spare sprinkler cabinet is an important component to a fire sprinkler system. Providing a thorough selection of spare sprinklers for a project allows for a speedy replacement in the event of a fire, accidental sprinkler damage, or other maintenance needs. Both NFPA 13 and NFPA 13R systems require a stock of at least 6 spare sprinklers on all premises, though this minimum amount is increased to 12 where there are 300 or more sprinklers installed or 24 sprinklers where there are over 1000 installed.

Section 6.2.9.2 of NFPA 13 states, "Sprinklers shall correspond to the types and temperature ratings of the sprinklers in the property". While this requirement is somewhat vague, the takeaway is that you are required to have a minimum number of sprinklers in the cabinet, as noted above, and that these sprinklers cannot just be any random assortment. They must correspond to specific sprinklers you have installed on the property. If you have a building protected completely with 250 Quick Response K-5.6 Ordinary Temperature Standard Spray pendent sprinklers, then that is exactly what those 6 sprinklers should be in your cabinet. Placing 6 Quick Response K-5.6 Ordinary Temperature Standard Spray Upright sprinklers would not meet this requirement.

What Section 6.2.9.2 does not say is that you are required to have every type of sprinkler in the cabinet, nor does it require the types of sprinkler to be proportional to the types of sprinklers installed. For example, if you had 500 Quick Response Extended Coverage (QREC) Pendent sprinklers and 100 QREC Sidewall Sprinklers, it would meet the standard to provide 11 QREC Sidewall Sprinklers in the cabinet and only 1 QREC Pendent. Here you have met the minimum required 12 sprinklers and all sprinklers in the cabinet correspond to sprinklers installed in the property. Simply meeting the letter of the standard is not always enough, and one should be mindful to place a somewhat



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representative sample into the cabinet box. So far, we have just touched on just the minimum required amount. It may be warranted to provide more where appropriate. Annex language appears in NFPA 13 as follows:

A.6.9.2.1 A minimum of two sprinklers of each type and temperature rating should be provided.

This language is similarly found in NPFA 13R and NFPA 25 under sections A.11.1.1 and A.5.4.1.5, respectively. The clear benefit of providing a minimum of two sprinklers of each type and temperature rating ensures that you will have replacements for minor issues. This could account for small fires, repairs, and impact to a sprinkler causing an accidental operation. According to John Hall Jr.'s 2013 report, US Experience with Sprinklers, 86% of fires are controlled by 1 or 2 sprinklers. Providing two of each sprinkler type in a cabinet ensures a speedy replacement and minimizes downtime to the system, regardless if sprinklers adjacent to those operating may need to also be replaced due to exposure to a fire. Though providing two sprinklers of each type and temperature rating is a best practice, it is not required, it should be the aim to provide at least one of each type.

This would be a good place to point out that when we are discussing including representative sprinklers that correspond to those installed, the standard does specifically provide an exception to where dry sprinklers are installed of different lengths. Due to the wide variety of dry sprinkler length, it is not practical to necessarily provide even one of every dry sprinkler. Taking this into account, the sprinkler technical committee provides an exception to these types of sprinklers. Though if a project happens to have only one type & length of a dry sprinkler, consideration should be given to provide that in the spare sprinkler cabinet.

In addition to the minimum number of sprinklers, what is required as of the 2007 edition of NFPA 13 is to also provide a list of every sprinkler used in the facility, which includes the Sprinkler Identification Number (SIN), general description, quantity of each in the cabinet, and the issue/revision date of the list. If no SIN is available, then the manufacturer, model, orifice, deflector type, thermal sensitivity and pressure rating should be recorded. The requirement for manufacturers to provide a SIN on their fire sprinklers was implemented as of January 1, 2001. Prior to this date, sprinkler would not have a SIN and should be described as above in the cabinet. Providing an accurate list of these sprinklers makes it possible for owners, contractors, and inspectors to understand what types of sprinklers they have in the building. In the event of any

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changes or modifications to a building, it is just as important to update this list to reflect the presence of new sprinklers.

Lastly, NFPA 13 does allow a facility with multiple buildings to locate the required spare sprinklers in a central location. NFPA 13 (2016) Section 6.2.9.1 states, "A supply of at least six spare sprinklers shall be maintained on the premises so that any sprinklers that have operated or been damaged in any way can be promptly replaced". The wording of this section uses the term premises and not building. When a number of buildings are all owned by the same entity (like a military base or a college campus), the requirements of NFPA 13 and NFPA 25 are met by simply having one central location for spare sprinklers, which might be better than scattering them where they can be lost, stolen or tampered with. The intent is to make sure that a sprinkler can be promptly replaced following activation so that the system can be returned to service. Of course, with such a central replacement location, replacements for all of the sprinklers in the complex need to be available, no matter how many different kinds of sprinklers there are.

On a single property with multiple buildings under the same ownership, it shall be acceptable to provide the required spare sprinklers in a single location."

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