

This issue of TechNotes has been written by Louis Guerrazzi, NFSA's Manager of Product Standards.

Sprinklers Subject to Mechanical Injury

The following section is found in the 2016 edition of NFPA 13, with similar text in previous editions: "**6.2.8 Guards** Sprinklers subject to mechanical injury shall be protected with listed guards". This is all the standard has to say on the requirements for Sprinkler Guards, and so the question is where will sprinklers be "subject to mechanical injury". The answer is that there are several areas typical for sprinkler guards to be used, though ultimately, this is going to be up to the user's judgment.

The concern is of course that mechanical injury will damage the sprinkler to the point where it would either not operate properly during a fire event or have a false operation when there is no fire. Depending on the nature of this "mechanical injury" a sprinkler's deflector could be damaged, the orifice cap could be bent or the operating element could break.

The most common use of sprinkler guards is for in-rack sprinkler systems, specifically where we cannot locate the sprinklers behind rack uprights or at least tight to them. Positioning the sprinklers behind the rack uprights provides protection from the loading and unloading of commodities onto the racks. Where we need additional in-rack sprinklers between rack uprights, the potential for an object hitting the sprinklers significantly rises, and therefore we typically provide sprinkler guards for these applications.

It is important to note here that, as section 6.2.8 states, the sprinklers are to be protected with "listed guards". Most sprinkler manufacturer's offer sprinkler guards matched and listed to their own products. There are also some other manufacturers who offer sprinkler guards that are "classified" rather than "listed" that may be used with sprinklers from other manufacturers. These products should be investigated carefully to assure that they are appropriately qualified for the intended use and acceptable to the AHJ. The testing lab's distinction between "listed" and "classified" is a subtle distinction in the scope of testing and "classified" guards are typically deemed acceptable within the scope of the standard's broader usage of "listed" as long as they have been tested with the sprinkler they are intended to guard. When installing sprinkler guards, you must make sure it is listed (or "classified") for *that specific sprinkler*. Unlisted or incorrectly listed guards could potentially delay activation or have an adverse effect on the sprinkler's spray pattern development.

Another common area for sprinkler guards is in areas where the sprinklers are installed in occupiable areas which have less than typical minimum allowable ceiling heights. These areas are going to come into contact with daily activities more readily. A tall person may simply hit their head on one, or a



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person may accidentally knock into it when performing mundane tasks. This is an area where the contractor's judgment will come into play, as sprinkler guards may prove beneficial in manufacturing facilities where sprinklers are installed low (below obstructions), but may have less of a benefit in maintenance areas which are only accessible by trained staff.

Lastly, guards are often used in recreational areas (i.e. gymnasiums, racquetball courts, etc.) where the sprinklers may be struck by balls or other projectiles in the course of normally anticipated recreational activities. These areas are going to need to be evaluated by their activities and discussed with the owner to determine if guards are advisable. For example racquetball courts are confined rooms where a small projectile is bounced off all walls and ceiling. A ball striking a sprinkler could potentially damage it or even cause a false operation. In these cases, sprinkler guards may be warranted.



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