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The pest management industry has become increasingly aware that some forms of pest control can impact fire sprinkler systems. One of the most popular methods for bedbug mitigation, for instance, is to heat the affected room or rooms to temperatures approaching 150°F near the ceiling.

In 2016, NFSA published a white paper, Heat Treatment for Bedbug Mitigation in Fire Sprinklered Properties (Upson 2016) which has gained considerable attention with the National Pest Management Association (NPMA) and has increased awareness about caring for sprinkler systems during these high temperature treatments[1]. Guidance for pest managers based on an NFSA presentation at their annual Pestworld conference (Upson 2017) recently appeared in Pest Control Online (Lucas 2018).

NFSA's recommendation to the pest control industry is to consult a sprinkler contractor to assist in selecting and implementing the best strategy for safeguarding fire sprinklers whenever whole room/building heat treatment is used as a mitigation method for bedbugs.

The white paper emphasizes that a sprinkler contractor should be consulted in connection with any heat-based bedbug treatments in sprinklered buildings. This article addresses the options available to protect sprinkler systems.

Available Options for Protecting Sprinklers

If all the sprinklers installed in the areas to be treated are intermediate temperature-rated or better, it is acceptable to leave them in place during heat-based treatment provided that ambient temperatures near the sprinklers are monitored carefully to ensure that they do not exceed those permitted by **NFPA 13 (2016) Table 6.2.5.1**; 150°F for intermediate temperature-rated sprinklers. The greater problem arises when ordinary temperature-rated sprinklers are installed in the treatment area as they are not permitted to be exposed to temperatures in excess of 100°F.

There are insulating chamber products on the market intended

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to protect individual sprinklers during high heat treatments but, to the best of our knowledge, none of them have been sufficiently tested to ensure their effectiveness. When ordinary temperature-rated sprinklers are present, the only method currently endorsed by the NFSA includes the removal of ordinary temperature-rated sprinklers prior to the high temperature treatments. This requires the services of a qualified sprinkler professional.

There are three general options for removing/replacing sprinklers. Which option is selected depends on the stakeholders' tolerances for system impairments and the likelihood of needing to repeat heat-based bedbug mitigation treatments in the future. It should be noted that taking the sprinklers in a single room out of service for any significant length of time can trigger impairment procedures for the entire building; making it very desirable in many cases to avoid or reduce impairments. It should also be noted that it may be considered prudent in occupancies prone to bedbug infestation to anticipate the future need for repeated bedbug treatments and design initial mitigation strategies accordingly.

Option 1. Remove the existing ordinary temperature-rated sprinklers prior to heat treatment; plug pipe outlets for the duration of high heat treatment; replace plugs with new ordinary temperature-rated sprinklers after treatment is complete if the owner specifically desires a return to ordinary temperature-rated sprinklers. This option ensures the greatest protection against accidental discharge during treatment but increases the time that the system must be turned off with a greater potential for required impairment procedures.

Option 2. Remove existing ordinary temperature-rated sprinklers prior to heat treatment and replace with sacrificial intermediate temperature-rated sprinklers prior to high heat treatment (these sprinklers cannot be reinstalled once removed); replace with new ordinary temperature-rated sprinklers after treatment is complete if the owner specifically desires a return to ordinary temperature-rated sprinklers. This option maintains the ability to keep the sprinklers in service during most of the process and reduces the need for potential impairment procedures.

Option 3. Remove existing ordinary temperature-rated sprinklers prior to heat treatment; replace with new intermediate temperature-rated sprinklers, and monitor ceiling temperatures at every sprinkler during heat treatment, replace all sprinklers exposed to temperatures above 150°F. Depending on the occupancy, it may be permissible to leave the intermediate temperature-rated sprinklers in place as permitted by NFPA 13 (2016) 8.3.2.1 which could be beneficial if a potential for additional heat treatments is anticipated in the future.

The option selected should be reached in consensus with all of the stakeholders involved including the owner and the AHJ to maintain the highest levels of fire protection during heat-based bedbug treatments without compromising the temperature requirements of the sprinkler system.



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References

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- Upson, Robert. 2017. *Protecting Fire Sprinkler Systems During Bed Bug Heat Treatments*. B'More Pestworld 2017, Baltimore. October 26.

[1] Look for "*Strange Bedfellows*" in the September/October issue of NFSM next month for a broad review of NFSA's participation in the bedbug discussion with the pest management industry.

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