

From The Code Corner:

Fire investigators must be a “jack of all trades” and an expert of nothing. An investigator is required to have knowledge of a large variety of mechanical, electrical appliances and items that could potentially cause a fire. The investigator should also have a working knowledge of fire protection and suppression systems. The code corner intends to give the investigator the fire code requirements for installation and maintenance of various systems. Knowledge of the code requirements will help in determining why a system failed to operate during the course of a fire. It can also aid in determining if the fire protection system was purposely defeated, so that the fire could cause greater damage, or destroy the property. The first area that we will talk about for this and the next several upcoming new letters, is concerning commercial kitchen hood suppression systems.

Kitchen hood systems are a mechanically operated system. Fusible links are placed along metal conduit above the grease filters in an exhaust hood. If there is a fire, the fusible link will melt and release a cable. The cable is holding tension on the trigger for the extinguishing agent container. Once the tension is released, the system will fire and all nozzles over the appliances will discharge the extinguishing agent. If for some reason the fusible link does not activate, there is a manual pull station that is located at or near the exit from the kitchen.

Hood system installation and maintenance requirements are found in the National Fire Protection Association codes 17 and 17A. NFPA 17 is for dry chemical extinguishing systems, and 17A for wet chemical. If the investigator is dealing with the examination of a kitchen system fire, he/she should consult with these codes to get a basic understanding of requirements. Local and State fire codes differ from State to State. The majority of local and State codes will refer to NFPA standards for fire protection systems.

Points to look for when conducting an examination of commercial kitchen fires, if the suppression system has failed. The first point is to determine if the system has been serviced and maintained on a regular basis by a qualified service company that is licensed to do service work on that particular manufacturers system. The NFPA codes required that kitchen hood suppression systems be serviced at 6-month intervals. The owner/ occupant of the property will have documentation from the servicing company to verify that information. Provided it did not burn with the rest of the property.

Part of the service is to change the fusible links once a year. If the links accumulate a great deal of grease residue, they may have to be changed more often. The fusible link has a year of manufacture stamped into it. The links that have been taken out during the service must be available to the authority having jurisdiction, to indicate that new links have been put into place.

This leads to the second point as you are analyzing a potential system failure. Fusible links vary in temperature, just as with sprinkler heads. The temperature ratings of most links are 360, 450 or 500 degrees. The placement of the links is based upon the cooking appliance that it is covering. The designation of the proper link temperature rating comes from the manufacturer installation manual.

If a higher temperature rated link is put over the wrong appliance, it could delay or prevent the system from activating during a fire. This can also occur, if the owner/occupant has changed locations of appliances under the hood. Many times appliances are switched around to different locations, without the thought of what effect it will have with the suppression system.

Finally, was there such an accumulation of grease build up that the link simply could not operate? This would be reflected in the documentation of system maintenance.

This concludes this edition of the code corner. In the next letter, we will continue with hood system analysis as it relates to fire investigation and the code. In the event that you have questions concerning this or other issues relating to hood suppression systems, please give me a call.

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