

RISK COMMUNIQUÉ

Kitchen and Cafeteria Cooking Fire Protection Equipment

Kitchen and cafeteria cooking equipment could present a fire hazard if not designed, operated and maintained properly. A fire in an exhaust hood, duct system or cooking surface can result in smoke, or substantial fire damage. It could also disrupt the delivery of services. When cooking systems are unprotected, damage from an uncontrolled fire could spread to other areas of the building. To reduce potential losses, consider fire safe design and installation as well as maintenance of commercial cooking equipment.

Types of Cooking

Cafeteria kitchen equipment can vary from one facility to another. Some small kitchen operations only provide steamers to warm already prepared food. This typically presents little fire risk. Greater risk is posed by facilities that operate deep fat fryers, ovens, stoves and grills heated by natural gas.

Exposures

From a fire perspective, flammable cooking materials that reach high temperatures such as grease, oils and other combustibles can ignite and possibly initiate a hazardous scenario. The fire could spread quickly to other areas of the building. An option to consider is the installation of high-temperature thermostats that automatically shut off the deep fat fryer if the grease exceeds a pre-determined temperature limit.

A metal ventilation hood is typically constructed over the cooking surface to collect smoke, mists and vapors, which travel through a metal duct flue system and exit through the roof. The exhaust cools as it travels through the system, and the grease can condense and accumulate on the metal surface. A fire can spread into the ductwork using the condensed grease as a fuel. Fire within the ductwork can spread by radiating heat through the duct to combustible building materials, such as at the point the exhaust flue penetrates a combustible roof assembly. If grease build-up reaches ignition temperatures in the hood and flue there is a possibility that fire could spread throughout the system or spread to combustible building components.

Fire Prevention Recommendations

- Specify design and installation in accordance with NFPA 96 (Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations) and local building codes.
- Consider installation of an approved grease filter system (self-cleaning if possible) that will degrease the hood and flue system.
- Consider use of an automatic fuel and electrical system shutoff (with manual reset only) upon activation of any fire alarm. Cooking cannot occur if the suppression system is deactivated.
- Consider the various options available with an approved automatic suppression system that protects the cooking surface, hood system and exhaust duct work:
 - o A local alarm and remote response tied to a central station or proprietary alarm center
 - o Manual activation equipment (typically a pull ring) being placed along the path of an exit, away from the cooking area and conspicuously marked
 - o An Underwriters Laboratory approved system (UL 300 - Kitchen Fire Protection Systems) is state-of-the-art. These systems are designed to extinguish hotter temperature fires created from the increased use of lower cholesterol cooking oils requiring higher temperatures versus animal fats. The use of "higher efficiency" heating systems that allow higher temperature limits and slower cooling times also create hotter fires that are more difficult to extinguish

This is a sample guideline furnished to you by Glatfelter Public Practice. Your organization should review it and make the necessary modifications to meet the needs of your organization. The intent of this guideline is to assist you in reducing risk exposure to the public, personnel and property. For additional information on this topic, you may contact your GPP Risk Control Representative. www.glatfelterpublicpractice.com

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Have Fire Extinguishers Available in Accordance with NFPA 10:

- A Class K classification should be used where cooking appliances that use combustible cooking media (vegetable or animal oils and fats) are utilized
- A Class K classification should be used where agents that saponify upon contact with hot grease
- Other than the specifications indicated above, typically a 2A20BC classification will suffice
- Keep combustible storage clear of the cooking area in a separate room if possible

Maintenance of Cooking and Fire Systems

- Have qualified personnel maintain and service the automatic fire suppression systems on a scheduled basis.
- Give extra care to keep suppression system nozzles clear and free of grease and other obstructions so that the system can dispense the extinguishant properly.
- Clean the hood filter systems regularly. Perform hood exhaust flue system cleaning periodically.
- High grease volume kitchens (with equipment like deep fryers) may require a more rigorous cleaning program designed to reduce grease buildup.
- Have the exhaust duct system inspected by qualified personnel.
- Inspect and clean (when necessary) fans, exhaust housings and roofs or sides of buildings that may accumulate condensed grease from the exhaust.
- Have qualified personnel maintain and service the cooking equipment per manufacturer's specifications.

References Resources:

NFPA 96 (2011 edition) Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations
NFPA 10 (2010 edition) Standard for Portable Fire Extinguishers, NFPA 70 (2011 edition) National Electric Code
UL300 and Kitchen Fire Protection Systems