FIRE SAFETY FOR COMMERCIAL KITCHENS

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 a minimal risk of fire. The risk of fire is greater in facilities that operate deep fat fryers, ovens, stoves, and grills heated by natural gas.

Exposures

From a fire risk perspective, flammable cooking materials that reach high temperatures such as grease, oils and other combustibles can ignite and possibly initiate a dangerous situation. 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 predetermined temperature limit.

A metal ventilation hood is typically constructed over a 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 moves through the system and the grease can condense and accumulate on the metal surface. If grease build-up reaches ignition temperatures in the hood and flue, it can fuel a fire that could spread into the ductwork and throughout the system. The fire can even spread to combustible building materials, such as at the point the exhaust flue penetrates a combustible roof assembly. Routine cleaning of grease traps and hood filters will help control grease build-up and reduce the potential for a grease-fueled fire to occur.

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 de-grease 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.

- Consider the various options available with an approved automatic suppression system that protects the cooking surface, hood system and exhaust duct work:
  - A local alarm and remote response tied to a central station or proprietary alarm center
  - Manual activation equipment (typically a pull ring) being placed along the path of an exit, away from the cooking area and conspicuously marked
  - An Underwriters Laboratory approved system (UL 300 - Kitchen Fire Protection Systems) is designed to extinguish hotter temperature fires created from the increased use of lower-cholesterol cooking oils, which require higher cooking temperatures than 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.

Have Fire Extinguishers Available in Accordance with NFPA 10 (Standard for Portable Fire Extinguishers):

- Use a Class K extinguisher where using cooking appliances that utilize combustible cooking media (vegetable or animal oils and fats).
- Use a Class K extinguisher where there are 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 the system can dispense the extinguishant properly.
- Regularly clean the hood filter systems and periodically clean the hood-exhaust flue system.
- 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.
- When necessary, inspect and clean fans, exhaust housings, roofs and/or sides of buildings that may accumulate condensed grease from the exhaust.
- Have qualified personnel maintain and service the cooking equipment according to the manufacturer's specifications.