RISK BULLETIN

ALLIANZ GLOBAL CORPORATE & SPECIALTY®

COMMERCIAL COOKING FIRE SAFETY

ALLIANZ RISK CONSULTING

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INTRODUCTION

Cooking any type of food presents several hazards under any circumstance. In a commercial cooking operation, those exposures may increase because of the volume and the multiple methods of preparation and cooking that may be performed in the kitchen. In addition to the use of stovetops and ovens as in a residential kitchen, commercial operations may also include large deep fat fryers and solid fuels such as charcoal or wood for grilling.

According to research by the National Fire Protection Association (NFPA), from 2010-2014 there was an average of 7,400 fires in eating and drinking establishments per year. These fires resulted in more than $165 million in property damage. Over 60% of these fires were attributed to cooking equipment. It is essential to understand the hazards associated with these exposures and implement proper programs and controls to reduce the possibility of a fire or other loss. NFPA 96 *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations* covers the specific requirements for protection of commercial kitchens.

COOKING EXPOSURES

A commercial kitchen will have the same exposures as a residential kitchen, in that there will be a stove and an oven in place, as well as at least one refrigeration and freezer unit. However, there may be multiple stoves in place, or more open burners to use for cooking. Instead of a normal four-burner stove, there may be six or even eight burners available. In addition, there may be a flat cooktop/griddle in place or an area for grilling using wood or charcoal briquettes. The kitchen may also have a broiler, or salamander, available as well.

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One of the greatest possibilities of loss is associated with the use of cooking oils and deep frying operations. Deep-frying usually occurs at high temperatures and may create splatter while the food is cooking in the oil. In addition to presenting a burn exposure to employees, hot oil may create an additional fire hazard in the kitchen area. Grease/oil fires are more difficult to extinguish compared to a fire involving "normal" fuels such as wood and paper.

NFPA 96 requires 16 inches of separation, or a tempered glass or metal barrier of at least 8 inches in height, between deep fryers and open flames or pilot lights on adjacent cooktops or ranges.

VENTILATION/EXHAUST SYSTEMS

The ventilation system installed over the cooking area is one of the first layers of protection in the kitchen. Kitchen ventilation systems pull heat, smoke, and odor away from cooking surfaces, which makes both the kitchen and restaurant environment more pleasant and comfortable and helps protect against fires. A properly functioning ventilation system can also help contain a fire to the immediate area.

Type 1 hoods, which are required over most gas and solid fuel-burning equipment or cooking equipment that produces grease or smoke, also have a fire suppression system for additional protection against grease fires. While dry chemical suppression systems may be used, it is more common to see a wet chemical extinguishing system in place nowadays. The wet chemical agent combines with the fatty acids in the vegetable and animal fat oils better than a dry chemical. In addition, it will stand up better to the higher temperatures used when cooking with vegetable oils. These characteristics improve the capabilities of the extinguishing system and reduce the possibility of re-ignition.

ADDITIONAL METHODS OF PROTECTION

In addition to the ventilation and automatic extinguishing system in place, there may be other layers of protection to consider for the kitchen. NFPA requires a K-type extinguisher installed within 30 feet of the cooking area. K-type extinguishers are designed specifically to fight fires involving combustible cooking fuels such as vegetable oils and animal oils and fats. While you may also have multi-purpose extinguishers in place in the kitchen, the K-type extinguisher is required as well.

The building itself may be equipped with an automatic sprinkler system which extends into the kitchen.

The sprinklers will provide additional protection for any type of fire not involving vegetable or animal oils/fats.

INSPECTION AND MAINTENANCE

NFPA 96 includes requirements for inspection, testing and maintenance of equipment in commercial kitchens. The ventilation system over the cooking area requires the most attention because of the possibility of grease buildup. The frequency of inspections is determined by the fuel type in use in the kitchen as well as the amount/duration of the cooking taking place:

Type or Volume of Cooking Frequency	Inspection Frequency
Systems serving solid fuel cooking	Monthly
Systems serving high-volume cooking (24 hour cooking, charbroiling, wok cooking)	Quarterly
Systems serving moderate volume cooking	Semi-annual
Systems serving low-volume cooking (churches, day camps, seasonal businesses, senior citizen centers)	Annually

City, state, or county regulations governing fire prevention codes may require additional inspections, usually conducted by the Fire Marshall. Additionally, your local health department may inspect your premises periodically to assure that you are adhering to good hygienic and food safety practices, and that you meet appropriate fire protection codes, which includes the inspection of ventilation systems.

TRAINING

Employee training is an essential element in trying to reduce the possibility of a fire in the kitchen area. It is also a requirement of NFPA 96. Employees must be trained at the time of hire and at least annually thereafter. At a minimum, training must include how to activate the extinguishing system and proper use of the K-type extinguisher. You may also wish to include hazards associated with use of vegetable/animal oils among other topics in your training.

Commercial cooking operations present unique exposures regarding fire safety and protection. If you would like further assistance, please contact your Allianz Risk Consultant.

Design: Graphic Design Centre