Some restaurant kitchen appliances use solid fuel such as mesquite, charcoal and hardwood to cook and heat food. It adds another dimension to restaurant offerings – from pizzas to smoked meat – and has the potential to bring in more business. Solid fuel cooking also allows restaurants a wider array of flavor and cooking capabilities.

Although solid fuel appliances also have the potential for increased safety risks, restaurant owners can safely use most solid fuel appliances with the right amount of understanding and preparation.

HAZARDS HEAT UP WITH SOLID FUEL APPLIANCES

By understanding the unique risks associated with solid fuel appliances, restaurant owners can take steps to mitigate the threats inherent in their use.

Fire Risks

Fire is a very costly and potentially business-ending event. According to the National Fire Protection Association (NFPA), an average of 8,160 structure fires involving commercial cooking equipment or ventilation components were reported per year between 2004 and 2008. They caused an average of three deaths, 100 injuries and $229 million in direct property damage annually. And 55 percent of these fires began in kitchens or cooking areas.

SOLID FUEL APPLIANCES
DIAL UP FIRE THREAT WITH
THE ADDITION OF HIGHLY
COMBUSTIBLE MATERIALS

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Cooking of any type has inherent risks. Solid fuel appliances dial up the threat with the addition of highly combustible materials. Restaurants that use these methods generate a large amount of heat and grease, especially when cooking meat. If ductwork isn’t properly installed or maintained, grease accumulation will make for a dangerous environment.

Many restaurants don’t fully extinguish the fires in solid fuel appliances because brick or stone ovens take too long to reheat. When in use, wood fire pizza ovens run between 500 and 600 degrees Fahrenheit. When not in use, restaurants often keep these appliances smoldering in order to keep the stone warm, even through the night after the restaurant is closed. Leaving a fire in the appliance while unattended overnight dramatically increases the risk for businesses.

**Health Risks**

In addition to the threat of fire, solid fuel appliances create the potential for increased carbon monoxide levels within the restaurant. As a result, make-up or replacement air must be brought into the building’s ventilation system from the outside. If ventilation systems are not properly installed and balanced with the existing ventilation system, employees and customers could face serious health dangers. Make-up air is also important in ensuring that smoke and exhaust draft up the chimney, not out into the kitchen and dining areas.

Many restaurant owners may not understand the active maintenance and consideration it takes to safely install and use solid fuel appliances, putting their employees, customers and business at risk. Unlike conventional cooking ovens, solid fuel appliances use the air in a restaurant to support the fire.

**KEEP YOUR EMPLOYEES, CUSTOMERS AND BUSINESS SAFE**

There are many steps a restaurant owner can take to help prevent or minimize fire risk from solid fuel appliances. The biggest areas to address include ventilation and cleaning, proper fire protection systems, safe storage and ignition practices, and adequate staff training.
Ventilation and Cleaning

Ventilation guidelines for solid fuel cooking are addressed by NFPA 96-14. While NFPA is a consensus standard, and not a “force of law,” it forms the basis for many local building codes, life safety codes and insurance company underwriting guidelines. Consensus codes and standards are intended to minimize the possibility and effects of fire and other risks. The key elements of NFPA 96-14 are:

- Solid fuel cooking appliances need to be installed consistent with NFPA 96-14 and its related sections
- Solid fuel cooking operations should have spark arresters to minimize the passage of airborne sparks and embers into ducts
- Exhaust for solid fuel shall be separate from all other appliances
- If located under a kitchen exhaust hood, the duct for a solid fuel appliance shall be separate from all other exhaust hoods
- The combustion chamber shall be inspected weekly for residue that might restrict the vent, start a fire or cause corrosion
- The exhaust system for solid fuel cooking shall be inspected monthly and cleaned if necessary

**Buildup of creosote, a by-product of wood burning, is the major cause of exhaust system fires, which result from poor preventive maintenance and housekeeping. For effective cleaning:**

- Scrape the combustion chamber clean to its original surface at least once per week
- Inspect flue or chimney monthly for residue that might restrict the vent or start a fire, and inspect for corrosion or physical damage
- Remove ash once per day and spray it with water before storing it in a covered metal container (container should not exceed 20 gallons in capacity)
- When ash is removed from the building, it should be placed in a dumpster or container located at least 10 feet away from the building

Fire Protection Systems

Solid fuel cooking appliances should be protected by a fire extinguishing system or water hose. All solid fuel cooking appliances that produce grease vapors and have fire boxes of less than 5 cubic feet need to have a minimum of a 1.6 gallon/K-Class or a 2-A rated Water Spray rated fire extinguisher within 20 feet. For solid fuel cooking appliances exceeding 5 cubic feet, additional requirements will apply.
Safe Fuel Storage and Ignition Practices

Never store fuel above any heat-producing device or closer than 3 feet to a solid fuel appliance constructed of metal, or to any appliance that could ignite the fuel. Restaurants should also implement a policy that solid fuel stored in the same room as a solid fuel appliance should not exceed one day’s supply. In the event of a fire, a smaller pile of solid fuel will make it easier to contain the flames.

Stored fuel should be protected by a sprinkler system or a water pipe system with a hose capable of reaching all areas. Fuel should also be kept out of the path of ash removal.

FOR SAFE IGNITION:

- Do not use flammable liquids to ignite any solid fuel cooking appliance
- Ignite fuel with matches, an approved built-in gas flame or other approved ignition source
- Never store matches and portable ignition sources near the appliance
- Use long-handled tongs to add or adjust the fuel position

For more safety tips, Society has developed a solid fuel checklist to help restaurant owners safely use solid fuel ovens.

Employee Training

Safe practices are literally in employees’ hands. Proper training is key to fire prevention:

- Train employees on proper handling and use of fire extinguishing systems
- Practice proper removal of ashes from char-broilers, conveyor ovens, wood-fired ovens and barbecue grills that use wood or charcoal
- Institute a policy of spraying ashes with water before removing them from the appliance
- Review proper appliance use and inspection at least twice a year

With an understanding of the unique risks that solid fuel appliances pose, restaurant owners can better mitigate these hazards. While difficult to completely eliminate health and fire threats, proper preparation will go a long way toward minimizing these risks.

Society’s team of risk control experts take care of the details that will help restaurant owners avoid catastrophic losses and keep their customers, employees and businesses protected. Get in touch with a Society agent today by visiting societyinsurance.com and learn more about how to best protect your business.

Please note that Society Insurance only insures the following solid fuel cooking risks: properly installed and controlled wood-burning pizza ovens, and meat smokers located in separate buildings a safe distance away from the main building.