

PROTECTING YOUR RESTAURANT

What is solid fuel cooking? Solid fuel cooking is a popular method of cooking that burns solid material, such as wood or charcoal, which enhances the flavor of food. Although this is an effective cooking method for restaurants, it poses safety risks that may be detrimental if not addressed properly.



What do these fires have in common? Though the building types and sizes are diverse, all of these restaurants employed solid fuel cooking. Exhaust ducts were insufficiently cleaned, and none of the fires was suppressed by appropriately designed fire suppression systems.

Risks with solid fuel cooking!

Using solid fuel can pose significant risks if systems are not designed properly. The main concern is an increased fire risk because the components needed for a substantial fire are already present. An excessive or misplaced amount of fuel can lead to an unintentionally, uncontrollable fire that leads to severe damage. The buildup of substances that are products of cooking, such as ash, grease, or highly flammable creosote, can also pose a fire risk if not cleaned and disposed of properly. Creosote builds up in the air ducting as a result of burning wood, and it can turn a spark into a raging fire extremely fast.



CREOSOTE FIRE RISK NFPA 96 section 12.6.1.1.1 indicates that hoods, ducts, and fans “shall be cleaned to remove combustible contaminants prior to surfaces becoming heavily contaminated with grease or oily sludge.” The “oily sludge” is likely combustible creosote, which adds to the typical risk of grease fires in hoods, grease filters, ducts, exhaust fans, and pollution control units. Creosote is well known for its fire threat in chimneys above residential wood-burning fireplaces. Creosote is made up of condensed volatile gases created by incomplete combustion of the wood. As these gases rise in the ducting, they cool, mix with water vapor, and form a tar-like substance that clings to the duct walls... Fires can start quickly and be very powerful, shooting flames many feet above and producing a loud rumble like a freight train going by.



NFPA Fact:

Cooking equipment was the leading cause of fires in these properties, accounting for three out of five fires (61%) and (38%) of direct property damage. Electrical distribution, lighting equipment and heating equipment was responsible for other causes. Wet pipe sprinklers operated in 93% of the fires.

Commercial cooking operations present a significant fire risk to a business, the following additional areas of concern should be evaluated:



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Solid Fuels – Fire Safety Checklist

Equipment

1. Are cooking appliances, installed in compliance with NFPA 96, Standard for Ventilation Control?
2. Are hoods and ducts for collecting cooking vapors and residues constructed of steel or equivalent material?
3. Are exhaust hoods separate from other cooking exhaust systems, except when the other systems do not require automatic fire extinguishing equipment?
4. Are hoods and ducts vented to the exterior of the building?
5. Are hoods and ducts provided with an accessible opening for inspection and cleaning?
6. Are hoods and ducts equipped with easily accessible and removable non-combustible grease filters?
7. Are exhaust ducts equipped with spark arrestors?
8. Are spark arrestors located between the appliance and the grease removal system?
9. Is the air make-up system interlocked with the exhaust system?
10. Are racks, trays, spacers, or containers placed inside an appliance (e.g., an oven) made of non-combustible materials that can be easily cleaned?
11. All ash shall be removed from the firebox chamber a minimum of once per day?
12. Is a minimum of a 3-ft (0.9-m) separation maintained between fuels and heat sources (e.g., stoves, lights, etc.), with no fuel stored above heat sources?
13. Are deep-fat fryers installed with at least a 16 inches of space between fryers and surface flames?
14. Metal-fabricated solid fuel cooking appliances shall be listed for the application where produced in practical quantities or shall be approved by the authority having jurisdiction.

Fire Protection

1. Are appliances that produce grease-laden vapors, other than appliances of solid masonry or refractory concrete, protected by a water-based fire extinguishment system?
2. Do either water-spray (Class 2A) or Class K fire extinguishers protect solid-fuel cooking appliances?
3. Are employees trained in the use of portable fire extinguishers and water hoses?
4. Are fire extinguishing systems covered by a service and maintenance program?

City of El Cajon requires plans, permits and inspections for these systems. These systems shall comply with California Mechanical Code 517.0 to 517.8, NFPA 96, and applicable codes.