

Carbon Monoxide Poisoning from Gas Fired Cooking Units in Food Preparation Locations

Three recent WISHA investigations uncovered a CO hazard that may exist in a number of fast food and other food preparation establishments. This brief report summarizes the lessons learned.

CASE 1: Employees had been complaining of headaches, dizziness, nausea, and confusion for several months. The gas company found excessive carbon monoxide being generated by the fryer, and shut it down. The next day, the employer's maintenance worker said he couldn't smell anything and turned it back on. After another week of symptoms, employees called the gas company again, and they



found even higher CO levels. This time, the maintenance worker re-adjusted the fryer flame and found that a fire damper in the hood air supply duct was closed.

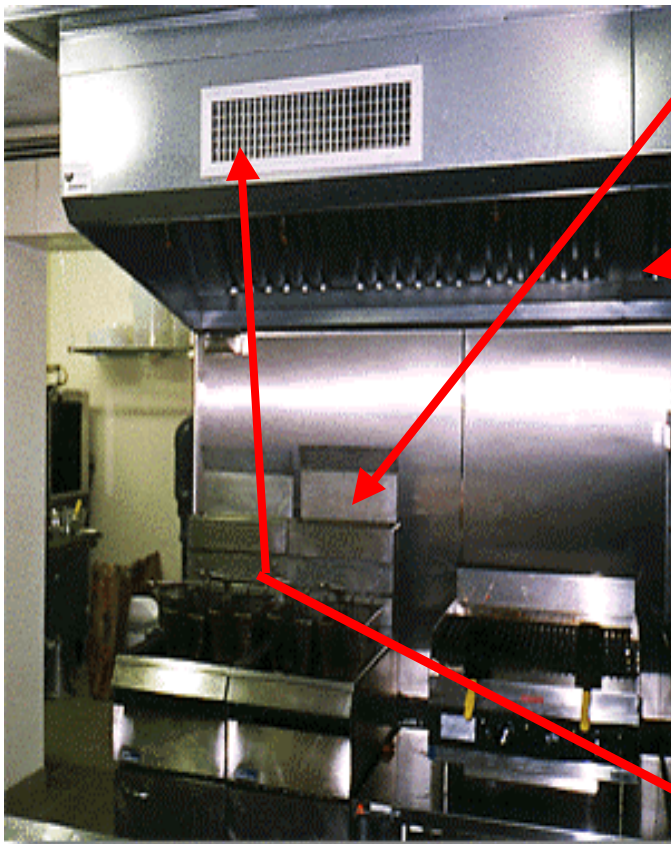
FINDINGS: Fryer generating excessive CO and exhaust hood no longer able to remove CO due to insufficient make-up air caused by closed fire damper. CO released into work area.

CASE 2: Employees file a complaint that the room smells of gas and they are not feeling well. They have headaches and nausea and sometimes get dizzy. The fire department finds that the exhaust hood over the fryer is pulling air back down the water heater flue. FINDING: Make-up air source was blocked causing exhaust from water heater burner to be pulled back down flue by the fryer exhaust hood and into work areas.

CASE 3: Employees are not feeling well over the last few days at work where they prepare pastas for other deli's. One employee visits a physician who suggests carbon monoxide gas poisoning. Management calls in gas company which finds elevated carbon monoxide and evacuates the building plus calling the fire department. Fire department measures 400 ppm CO inside the building. FINDING: The hood's exhaust fan was broken resulting in the direct release of CO from the portable gas fired pasta cooker into the building

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About the Process



• Many fryer units are portable and do not directly exhaust outdoors. Portable fryer units require an additional ventilation system to exhaust combustion gases outdoors.

• Typical commercial ventilation cooking hood design. It is **assumed** they always work perfectly. The box shows common failings.

No mechanism to signal a component has failed
No alarm system
No instructions in checking fire dampers or fan function
No access panels to inspect duct's interior
Carbon monoxide alarms absent (not currently required)

• Required make-up air is frequently supplied by the ventilation hood.

- A potential event is a fire over the fryer (which is quickly extinguished) but was hot enough to melt the fusible link to the hood's air supply fire damper. When the unit is returned to service, replacement of the fusible links can be overlooked. The now closed fire damper reduces necessary make-up air and the potential for carbon monoxide poisoning increases.
- Manuals for hoods and fryers may have minimal carbon monoxide information

Prevent CO Poisoning from Gas Fryers

- Train management, maintenance, and staff about the hazards of carbon monoxide and how they may detect harmful exposure.
- Train maintenance personnel on the specific inspection and maintenance procedures to prevent CO release and poisoning.
- Periodically check that make up air, exhaust system, and burners are operating to specification, and fusible links in the fire damper have not expired. Make all necessary repairs and adjustments.

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