

Restaurant Survives Grease Fire Because Factory Built Exhaust Duct Did Its Job

A restaurateur's dreams are never more than a few inches from an open flame.

Grease duct for kitchen exhaust can either add a layer of protection between a cooking flame and the rest of the establishment, workers, patrons, neighbors, etc. or it can make a bad situation worse. A fire that took place in an upscale restaurant in the historic Old Port neighborhood of Montreal illustrates this fact with perfect clarity.

It's unclear when the fire started, but on an evening in late spring 2017, a neighbor reported seeing ten-foot (3M) flames coming from the rooftop chimney above the popular restaurant. The chimney was connected to the restaurant's signature cooking fireplace where chefs openly prepared an assortment of meats and other menu items. It's not known how long the fire burned; however, later inspections of the duct interior indicated it got very hot.



While the exterior of dual wall duct looked pretty much the same as it had the day it was installed, post-fire inspection of the interior wall revealed evidence of a fire that likely reached temperatures of 1000°F (540°C) or higher.

"When we removed various access doors and insulation to reveal the inner wall, we could see a lot of discoloration of the metal. This indicated the extreme heat of the fire," said Thierry Wright of Distech Group, the manufacturer's agent that sold the duct system, which was original to the restaurant.

Mr. Wright was asked to inspect the duct, along with the installing contractor, shortly after the fire occurred. He later prepared a report for the owner, complete with a series of photos taken at the site. The photos reveal a duct system that was perfectly intact, except for discoloration of the inner wall and soot and residue from burned grease on the duct interior. The entire length of the exterior duct wall, from fireplace hood to rooftop, showed no sign of fire.





Looking down into the disassembled chimney, however, Mr. Wright and the contractor saw plenty of evidence of heat, fire and grease accumulation. Not only was the interior of the inner wall blackened by soot from smoke, a speckled white residue showed where puddles of grease had accumulated and then burned off during the fire. Wood-fired ovens, though immensely popular for the rustic flavors they produce, require the owners to commit to a level of consistent maintenance. These and all other solid fuel burning grills and ovens are especially vulnerable to creosote and grease build-up and require weekly inspection and regular cleaning per NFPA 96.

Containment Equals Survival

Mr. Wright and the contractor also observed something else. White rings at the joints of the duct indicated where a silicone sealant, rated for 2000°F (1090°C), had been applied per manufacturer's instructions at all the joints. This sealant is water soluble and unique only to CIX and not any of the other UL1978 listed grease duct lines. The contractor had done an excellent job sealing the system, which prevented the fire from escaping the inner duct.

"We could also see soot on marks on insulation gaskets of the access doors. This further confirmed the high temperature that occurred inside the CIX duct," said Mr. Wright.



The CIX duct used in this application was an all stainless-steel chimney (other options are available) and is ETL listed to meet UL 1978. It is also approved for grease duct applications when installed in accordance with the NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. Two inches of mineral fiber insulation fills the space between the inner and outer walls to reduce the required clearance to combustibles.

Like all Secure Stack systems, the CIX system was pre-designed and fabricated for the specific application. The product ships to the jobsite in modular sections that the contractor assembles together using grooved couplings and special heat resistant sealants for the inner wall and outer walls. There is no jobsite welding and all welds on the shipped product are factory-tested for leaks. This not only saves the owner the time and expense of special permitting during construction but also provides peace of mind.

“There’s no doubt that the ductwork did its job and this owner had a fully intact kitchen and restaurant to prove it.”

The grease fire had likely occurred as a result of a spark from the wood-fired grill entering the exhaust duct and igniting some accumulated grease – a common ailment when it comes to commercial kitchens which are notoriously lax about code required duct cleaning. According to the National Fire Protection Association (NFPA), most restaurant fires originate on kitchen cooking appliances and flare into the kitchen exhaust system. These extremely hot fires can spread rapidly through neglected exhaust systems laden with grease, and then onto the roof.¹

Fortunately, this story had a happy ending. No one was hurt nor did the restaurant sustain any damage. In fact, it was able to re-open in time to greet an onslaught of customers during the city’s busy Formula 1 Grand Prix Race week. But it is a cautionary tale for restaurant owners and what they need to know about the selection, installation and maintenance of grease duct. Good maintenance, including regular cleaning per NFPA 96 guidelines helps prevent grease fires from starting. But a liquid-tight duct system keeps fires from spreading and becoming catastrophic.

“This is a story of survivability – not just of people but of a restaurant that faced very limited closure time after a fire that could have shut them down for good,” said Wright. “We firmly believe that pre-fabricated, factory built Secure Stack duct is an asset to restaurant owners for this very reason.”

¹<https://www.foodnewsfeed.com/fsr/expert-insights/3-things-you-should-be-doing-prevent-kitchen-exhaust-fires>

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