

With many fires, particularly smaller ones, the damage caused by smoke can exceed the damage caused by the fire. Often times, restaurant owners are baffled by where the smoke damage occurs and what is damaged by the smoke. Understanding exactly how smoke moves in a fire and where it causes damage can be helpful to any restaurant owner who may have experienced a fire loss.

To get a better understanding of smoke behavior we have to take a look at the 4 factors that drive the behavior. These four factors are the temperature, the surrounding environment, the particle ionization and the airflow pattern. Let's take a quick look at each one.

Temperature is a big determinant of smoke behavior because hot air rises and the temperature of smoke lifts it upward. Smoke will climb until it is blocked by a ceiling or overhang. The densest concentrations of smoke damage will typically be just above where the fire was the hottest. The hot air will be cooled by the outside walls and the windows which are cooler. As this happens, the colder air will fall to the floor to be heated again by the fire. This convection of air will deposit much of the smoke on to the walls and the windows where the hot smoke cooled.

The surrounding environment will also have an impact on where the smoke particles and residues land. As I mentioned above, much of the residue will deposit on the windows and walls since they are cooler. This means if you have drapes or curtains in your restaurant and you have a smoky fire, you will want to check the inside of your drapes and window treatments. You may find damage there where none is apparent on the outside of the window treatments. In addition, as the heated air expands in a fire, it will push smoke into closets and other seemingly closed spaces. The air in these spaces will cool the gases of the fire and leave behind smoke damage inside closets and nooks. Check these carefully after a smoke damage event. One other place where smoke damage can occur that may not be obvious is in the duct systems in your restaurant. The temperature gradient may pull smoke and gases into the ductwork where they cool and leave behind residue and particulate matter.

What is actually burned in a restaurant fire will have a big impact on the particles found in the smoke. And the kinds of particles in the smoke will affect which surfaces they will be attracted to and on which they will deposit. For instance, combustion of plastics often results in particles that carry a stronger charge than burned organic materials. As a result, smoke from burned plastic tends to accumulate in cobweb type patterns in corners and at the junctions of walls and ceilings.

The airflow pattern in your restaurant will also affect where the smoke deposits its damage. Think of the smoke as water flowing in a stream and every obstruction that it runs into will pick up some accumulation of the particles. Be careful to check the insides of drawers and cabinets for damage as the flow of the smoke may have put them in the path of damage. Again, due to the large temperature gradient from the inside to the outside of a cabinet or drawer, the smoke particles might have cooled and deposited in these spaces. You want to find all of this before you settle with your [restaurant insurance](#) claims adjuster.

Having a better understanding of the character of smoke damage will help a restaurant owner more quickly discover damage after a smoke event. This can lead to a little bit less stress in a very stressful time. At [Clinard Insurance Group](#), located in Winston Salem, NC, we want all restaurant owners to be informed insurance consumers. We insure hundreds of restaurants, all across North Carolina and South Carolina. If we can help you with your restaurant insurance questions, please call us, toll free, at 877-687-7557 or visit us on the web at www.TheRestaurantInsuranceStore.com

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