



**PuroClean**<sup>TM</sup>  
The Paramedics of Property Damage®



*Information  
Please...*

**411**

***“Helping insurance professionals improve customer retention and reduce loss ratio.”***

VOL. 9 NO. 10

## **Dealing with Furnace "Puff Backs"**

The heating season is upon us. Many homeowners are turning on their furnaces for the first time since the final spurts of cold weather last season. Undoubtedly, there will be a flurry of problems ranging from units that simply do not work properly, resulting in an unfortunate furnace "puff back".

The term furnace "puff back" refers to the sudden explosion (or expulsion) of soot into the dwelling caused by a malfunction in the heating system. It is usually an uncontrolled explosive ignition in the fire chamber. "Puff back" has become a familiar term and is applied to any furnace disorder that results in soot being deposited into the living area of a structure.

Correct furnace operation combines fuel and oxygen in a balanced mixture providing efficient and controlled combustion. When correctly mixed, the almost complete combustion of the fuel provides a steady flame, while producing extremely small smoke particles. These particles are carried by the hot exhaust gases and are discharged from the dwelling through the chimney.

When the rate of combustion slows, but fuel injection continues at the same rate, a sudden and violent combustion can occur. This can cause a vibration throughout the heating system, which is powerful enough to dislodge accumulated soot residue within the system - especially in the ductwork. The air stream of a forced air system picks up the soot particles and distributes them through the vents and into the living areas.

Hot water systems are not immune from "puff back", although the particle flow is different from forced air systems. In hot water systems, soot residue follows the normal convection currents that run along the hot water pipes. Soot particles travel throughout the home, settling in areas far from the point of origin.

Residue from "puff back" is usually an oily, sticky film that often has a petroleum base. The odor is sometimes overwhelming. Because of the normal convection currents, plus the pressurization caused by the explosive combustion, the soot finds its way into every nook and cranny throughout the structure. You often find residue on exposed items such as furniture, but also behind closed doors and inside cabinet drawers. The residue can penetrate into closets affecting the clothing and other personal items.

Immediate response to a "puff back" by trained PuroClean professionals will help reduce the cost of the claim as well as any anxiety and tension that might result. By properly performing a thorough inspection of the premises and by testing various cleaning methods, a plan of action is quickly determined and then implemented.

After any malfunction, the heating system will need to be properly serviced by trained HVAC technicians. The duct system will also need to be cleaned before restarting the system. Proper care must be taken to avoid any cross contamination, which can easily occur by untrained workers. With a complete evaluation by a PuroClean professional first, these potential problems are avoided.

Due to the oily residue, it is often necessary to use alkaline degreasers and wet-cleaning methods to remove as much of the soot as possible. Often these cleaning agents are very aggressive and the structure will require further steps to return it to its pre-loss condition. Applying a heavily pigmented sealer will prevent remaining stains and their related odors from returning. PuroClean will be able to properly evaluate these situations.

Furnace "puff backs" are always unexpected and homeowners often feel devastated afterwards. PuroClean professionals understand this reaction and are fully trained to help homeowners deal with the situation. They help reassure the homeowner by taking charge of the restoration details. They will also communicate the need for professional cleaning and other services in a way that the homeowner will understand each phase of the project. Discussing ahead of time the expected results, along with any potential concerns, guarantees there will be no surprises later on.

PuroClean's goal is to return the home to its pre-loss condition as quickly as possible and for the homeowners to be able to resume their normal lives.

Regardless of the circumstances – when dealing with "puff backs" or other fire/smoke damage, water damage, odors, or mold remediation - call your local PuroClean office, the Paramedics of Property Damage™. For all property damage situations, these professionals are standing by. They will mitigate the loss to prevent further damage and will then provide restoration services to return the property to a pre-loss condition as quickly as possible. All PuroClean offices have well-trained professional technicians who provide the latest state-of-the-science services to all property damaged from water, fire, smoke, mold and other disasters.

written by

**Will Southcombe**

**Director of Technical Services,  
PuroClean Headquarters**

Master of Arts,  
Master of Business Management,  
Water Restoration Technician,  
Applied Structural Drying,  
Certified Microbial Remediator

---

This publication provided courtesy of your local PuroClean office.  
*Offices Independently Owned and Operated.*



**Respond ■ Restore ■ Rescue**

***PuroClean Mitigation / Restoration Service***

[www.purocleancentralmass.com](http://www.purocleancentralmass.com)

Toll Free: 1-866-370-1083

Local: 978-549-8620

Copyright © 2003-2009. All rights reserved in all countries.  
Reproduction of the material is prohibited without prior permission.