

How to Clean Up Smoke and Soot from a Fire

Smoke and soot can travel and penetrate rooms affecting paint, carpet, upholstery, drapes, clothing and any other belongings. Ventilation of the fire scene or debris removal is an effective first step to clean up after a fire. Thorough cleaning and neutralizing of both the deposits and odors are required prior to any redecoration.

How to Start – General Cleaning Techniques

Different types of fire require different cleaning techniques. Typically, high-oxygen fires will result in dry dusty soot, whereas slow-burning, low-oxygen fires will result in greasy wet deposits that easily smear. The cleaning regimen must take into account these variations.

Here are some clean-up recommendations and guidelines:

- Wear gloves such as household dish washing gloves, long-sleeved shirts and pants to avoid skin contact. If you get any ash on your skin, wash it off as soon as possible.
- Wear personal protective gear, such as a dust mask (preferably an N95 mask), to avoid breathing in ash and other airborne particles.
- Ventilate the area (open windows, etc.) to remove soot and odor.
- Remove burned debris to reduce odors.
- Install dehumidifiers to control moisture in the air (relative humidity), especially where water was used to extinguish the fire.
- Wipe all metallic finishes with cooking oil to prevent rust and staining.
- Clean plastic or surfaces such as PVC windows and white painted surfaces using a mild alkali detergent to remove possible acidic soot which may activate with moisture in the air and cause permanent staining.
- Undertake triage assessments to clean or remove all contents as quickly as possible and in order of value.
- Deodorants should not be used as they mask odors, which is a significant indicator of health concerns.
- Where surface staining cannot be removed, consider the use of specialized paint to obliterate the stain and anti-bleed characteristics. Typically, these paints are lacquers or oil-based.

Cleaning Techniques for Specific Types of Damage

For Damage Due to High-Oxygen Fires: Use dry sponges to remove initial deposits and follow with a low-alkali detergent, then rinse.

For Damage Due to Low-Oxygen Fires: Do not use a dry sponge as this may create smears and cause the soot to spread. High-alkali detergents are recommended with warm water and wash down. Remember to rinse thoroughly, as residue may affect subsequent paint applications.

For Damage Due to Kitchen Fires: Thorough cleaning is required, as residue may not be readily visible. Remember that usually kitchen cabinets and drawer contents will need to be removed to allow access to hidden areas.

Cleaning of Heavy Residue: This may require assistance from professionals and mechanical cleaning. Cleaning methods include the following:

- Low-pressure sandblasting
- Sodium bicarbonate blasting
- Dry ice blasting
- Power washing with steam
- Chemical application and agitation
- Non-destructive rubber blasting.

Cleaning Techniques for Specific Materials

Curtains and Upholstery: Soot is oil and should be removed as much as possible with a powerful vacuum. On sooty fabrics, do not use an upright vacuum or any machine or attachment with brushes or beater bars, as it will force soot into your other possessions and make them much more difficult to clean. Hold the vacuum nozzle slightly above the surface and let the vacuum do the work in lifting soot from the surface. Remember to cover any cleaned possessions immediately after cleaning with clean sheets to prevent re-soiling during your other clean-up efforts. Do not machine wash drapes or other materials that require dry cleaning.

Carpet: Use a rotary scrubber or an extraction machine from a rental outlet or supermarket or hire a professional carpet cleaner.

Clothes and Bedding: Smoke odors can remain in fabrics for a very long time until all of the unburned chemicals have been removed. Many of them are invisible to the eye. Soak overnight with detergent and wash normally. For items that can be bleached, add laundry bleach as normal during the wash cycle.

Hard Materials – Porous (painted surfaces, wallboard, plaster, wall paper, exposed wood):

If soot is present on porous surfaces, we recommend the use of a dry chemical sponge to remove as much soot as possible. This step can prevent soot from being transferred deep into the surface where it may show as a permanent stain.

Hard Materials – Less Porous (tile, countertops, sealed wood, glass, metal, appliances, and vinyl wallpaper):

Use a sponge, towel or mop with household cleaning detergent.

Safety Tips During Restoration

- Do not use electrical appliances that have been near a fire.
- Do not use ceiling fixtures if the ceiling is wet.
- Do not touch anything during your first inspection to prevent transferring soot from item to item.
- If needed, seek professional help in restoration effort.

For more information, contact the Environmental Health Division at (626) 430-5200.