CLEANING & DEODORIZING FOLLOWING FOREST FIRES

BY SCOTT WARRINGTON,
DIRECTOR OF TECHNICAL SUPPORT FOR BRIDGEPOINT SYSTEMS

The 2012 forest fire season was destructive. Fires in Colorado, Oklahoma, California, Utah and several other western states left over 1,000 homes in smoldering ruins. In addition, nearby homes and businesses undamaged by the fire could be damaged from the smoke for many miles around. Also, areas near the fire may have had fire-suppressant chemicals dropped from planes. These chemicals must also be removed from building exteriors and track-in cleaned up.

SMOKE IS AIRBORNE, IT GOES EVERYWHERE

Smoke particles adhere to all surfaces - walls, ceiling, wall cavities and ductwork, as well as carpets and upholstery. Carpet cleaning alone isn't enough to take care of the smoke odor. Smoke particles can coat the inside of the ductwork, so ducts must also be cleaned before the heating and air system is turned back on to avoid blowing smoke particles back on newly cleaned surfaces. Walls and ceilings must be washed and may need to be painted to seal in any remaining smoke particles.

Last year the number of homes with damage from smoke, ash and odor numbered into the tens of thousands. Restoration contractors in some locations were overwhelmed with calls from families desperate to have their homes cleaned. Trained cleaners could not meet the demand for their services. Many jobs went to cleaners with less than a thorough knowledge of deodorization and fire restoration.

THE FIRST STEPS ARE OFTEN THE MOST IMPORTANT

The longer soot and ash remain in contact with a surface the more difficult removal will become.

Other home-owners have tried to solve their cleaning problems themselves, often with less than satisfactory results.

Cleaners who are not involved in fire and smoke restoration have compassion for these victims, but may lack the training, experience or products necessary to help. Cleaners are aware that someone will perform these services. The last thing they want is for their clients to be forced to bring in another cleaning company to correct smoke, soot and odor problems.

Your local Interlink Supply and the Interlink Supply technical support including our website www.Cleanwiki.com are ready to assist with answers to questions on this topic.

The 2013 fire season has been a long one with severe fires in California and Colorado. But, here is some basic advice that may help you and your customers. You may find it useful to incorporate this information in an education marketing piece that can be distributed if there are fires in your area.

What advice can you give your clients until the cleaning can be done?

- Particles of soot are considered carcinogenic. They need to protect themselves from breathing these small particles. In most cases a dust mask rated at N95 or better will do just fine. However, the very young (less than 2 years old) and anyone with impaired breathing should avoid areas where soot is still present. Dust masks are available at Interlink Supply.
- Soot mixes with moisture in the air to form acids that can etch, corrode and discolor some surfaces. Give first priority to surfaces that are most easily damaged by soot. These include windows and other glass, chrome, stainless steel and other polished or painted metal including plumbing fixtures and appliances. These surfaces can be wiped down with a clean terry cloth using an alkaline cleaner with no strong solvents such as Viper 11 or ammonia diluted with water.
- Keep doors and windows closed to prevent more soot and odor from entering the home. Use extensive matting at entry ways to prevent soot and ash from being tracked in.
- Change HVAC filters at the start of a job and often at the conclusion of a project as well.
- Stone surfaces such as marble, travertine and limestone will also be damaged by acid soot. If not cleaned promptly, the damage worsens. These floors, counter tops, shower walls and so forth should be swept wiped and mopped with a neutral cleaner until professional cleaning can be accomplished. Spinergy Vivid is the perfect product for this purpose.
- Upholstery, drapes and other soft furnishings should not be used until they are professionally cleaned. Sitting on the sofa can push soot further into the fabric. Oils from fingers, hands and hair will make soot more difficult to remove. When upholstery must be used, place covers, bed sheets or other protection over them.
- Home-owners should not attempt to wash painted or wood paneled walls, vacuum or otherwise clean upholstery or carpets. There is a possibility they could damage the furnishings as well as spreading soot into the air and around the home.
- Clean less affected areas first and use plastic sheeting or other barriers to shield clean areas from being recontaminated.
- Clean from the top down.

If your company is called on to provide the restoration service, how do you proceed? Here is some information that should help.

Cleaning building exteriors will always be necessary, but interiors may also have been compromised by soot and ash infiltration of air, air drawn through HVAC systems or even open windows and doors. Interiors are also likely to have odor control issues and as always removing the source of the odors by cleaning remains a key principal of odor elimination. Lawns, shrubs, flowers and other vegetation may require care.

The first steps are often the most important. The longer soot and ash remain in contact with a surface the more difficult removal will become. Damage from soot will continue

to increase while it remains on the surface. After taking any appropriate safety precautions, the first step should always be to remove as much soot and ash as possible while it is still in a dry state.

Soot is defined as the product of incomplete combustion. Generally field and forest fires result in an oxygen-rich fire that burns quicker, hotter, and with smaller smoke particles. The hot temperatures and winds associated with the fires spread the smoke and soot literally everywhere. These smoke particles settled or adhere to practically every surface. While many home and business owners recognize the odor associated with the smoke and soot as a nuisance, they should also be made aware that the longer these smoke and soot particles sit on a surface, the more likely it is that there will be permanent damage to the surfaces. Smoke and soot can damage plastics and natural stone within minutes. Within hours it can tarnish metal and discolor grout. Within days it can yellow painted surfaces, corrode metals, and cause permanent staining of fibers and fabrics. Within weeks, it will yellow carpet fibers, discolor ceramic tiles, and etch glass and crystal.

In addition to smoke, soot and ash, there is likely to be residue from fire suppression chemicals. You have likely seen video of tankers dropping a red liquid over burning forests. The red color is due to iron oxide (rust) being added to the mixture. The red color allows fire crews to clearly see where the suppressant is being applied. Synthetic colors may also be used or the fire suppress may have no coloring added and appear off-white to beige.

In addition to the small but problematic coloring material fire retardants contain mostly water (85%) along with a strong dose of ammonium based fertilizer (10%) and thickening agents to keep the water on the target longer. Skin contact with fertilizer can cause skin irritations including redness, itching, stinging or dry skin. It will also sting eyes and cause watering. Use appropriate personal protective equipment.

Begin by removing soot and ash from all affected surfaces. Be aware that ash in the air from ongoing fires or that has not yet settled can recontaminate surfaces.

Most professional cleaners are already aware how to clean carpeting, wood floors, and tile & grout floors. Now they may be called upon to clean walls, ceilings, ductwork, brick, stone, metal, plastic, and mortar inside and outside the home or business.

Here are some general cleaning and deodorizing steps to follow:

1. Always remove as much of the soot and smoke from any surface in a dry state as possible. Avoid coming in direct contact with the smoke or soot. Sweep or blow it off exteriors with a leaf blower or vacuum.

   After removing the general debris, HEPA is appropriate for structural components. If some soot or discoloration remains, wet cleaning may be needed. This is discussed later.

   Inside you can use pressurized air or vacuum with off with appropriate tools. You can use a dry cleaning sponge (AX26) to help remove smoke and soot that is holding on tighter.

   Dry cleaning sponges use static electricity and a small celled structure to capture soot that is loosened by abrasion or rubbing. Use it like a giant eraser. Since it works by static electricity any moisture can create a “short circuit.” Even oils from hands can diminish the effectiveness. I suggest using sponges while wearing disposable gloves. Twisting sponges back and forth a few times helps to build up the static charge. Keep in mind that dry cleaning sponges have no chemical property. They leave no chemical residue behind. Do not refer to them as chemical or chem sponges. This is not only inaccurate but can elicit unnecessary concerns on the part of your client.

   Avoid the temptation to start wet cleaning and chemically treating immediately. Some of the most difficult soot and smoke stains you will encounter will be from home or business owners who tried to wet-clean soot and smoke contaminated surfaces first.

2. Concrete driveways, flagstone and similar hard surfaces can be cleaned using Viper Venom (CR22GL) or Peroxiblast (CH48A) along with an SX-15 (AW105). NOTE: Peroxiblast includes an oxidizer. It is suggested for use on concrete and surfaces with no added color.

   Laundry bleach (sodium hypochlorite should not be used when cleaning residue from fire retardants or fire suppressants. This could result in chemical reaction that produces harmful gases.

   Grass and plants can be washed with light spray of water with a small amount of detergent added and then rinsed with water.

   For most interior hard surfaces, wet clean-up starts with the application of Bridgepoint Hard Power (CC31GL). Hard Power will safely and effectively clean up walls, countertops, ceilings, and more. For greasier soot, especially on brick or masonry, Benefect Atomic Degreaser (CD09GL) is very effective. As always, pretest the solution on the surface you are cleaning in an inconspicuous place before cleaning. For best results cleaning tile floors and walls, use Viper Venom (CR22GL), aided by the use of an SX-15 (AW105) or SX-7 (AW101) Hard surface tool. If you need to use a milder cleaning agent due to the nature and construction of the floor or counter surface, use Spinergy 7 (CH45GL). For wood floors, use Hydro-Force Wood Fresh Wood Cleaner (CW025GL). For most synthetic carpeting, use Zone Perfect (CC03GL) as your prespray, and PowerPoint (CC26GL) as your extraction rinse. If the soot contamination is particularly bad in a synthetic carpet, you may want to use Traffic Slam (CC20GL) for olefin or new Flex Powder with Citrus Solv (CC21A) as your prespray for other synthetic fibers. For upholstery cleaning, use Avenge HD Fabric Prepray (CU21GL) and Avenge Clean Rinse (CU24GL).

3. For deodorization purposes on contaminated surfaces, you can add either Hydrocide (4-8 ounces per gallon) (CD13GL), Hydrocide Xtreme or Odor X 9-D- 9 (1-8 ounces per gallon) (CD59GL) directly to any of the mixed water based cleaning solutions mentioned above. Consider spraying some Spice Air (CD15GL) or Fresh Lemon (CD12) onto the surface following cleaning.

4. For dealing with large scale air-space deodorization indoors, the cleaner has four distinct options. The use of a natural deodorizing gas created by an ozone generator (Sonozaire 5G – AS37, Hydrozone – AS31) can be used to eliminate odors in unoccupied homes or businesses. Make sure to keep occupants and pets out for 4 to 6 hours after treatment. Concentrated ozone can also be damaging to contents with rubber, vinyl or leather. So, although ozone can produce good results there are several limitations.

   Another way to deodorize airspace that has shown excellent results on smoke odors is the Vaportek Vapershark with S.O.S (Smoke Odor Solution) membranes (AR49, AR49S). This is the safe and effective option when a home is occupied or when technicians are working in the home. This allows the deodorizing process to begin as soon as your technicians arrive on the scene. Experiencing quick results helps reassure your client that you will bring the job to a successful conclusion.

   You also have the option of thermal fogging the airspace with an electric hot fogger (AS42) or the Golden Eagle hot fogger (AS39). The ideal hot (thermal) fogging solution for this type of smoke odor is Citrus Thermal Fog (CD27GLB). Finally, you can use wet fogging utilizing the PureMist fogger (AS40) and fogging 9-D-9.

5. For cleaning and deodorizing smoke and soot contaminated surfaces outdoors such as automobiles, swimming pools, bricks, mortar & stone, and more, you can utilize Hard Power (CC31GL). A high pressure washing gun (AS58 or AS60), perhaps powered by your truck mount, will increase your efficiency and reduce labor.

6. Recall that the red coloration is caused by iron oxide also known as rust. This can be very difficult to remove. Acid side cleaning is usually most helpful. If you are having trouble removing the discoloration from outside surfaces, consider using Viper Renew (CH49GL). Always pretest on the surface being cleaned for colorfastness and effect on texture. Be sure to neutralize and rinse acid cleaners. Acid cleaners can etch calcium based stone surfaces and pit shiny metal.

   If the fire suppression chemicals have been tracked inside onto carpeting, you can use the directions and solutions mentioned above for cleaning carpeting or hard surface floors. If any red discoloration remains in the carpet following cleaning, consider applying T-Rust (CS12GL).

Additional information on cleaning following a forest fire can be found from these resources:

CONTAINMENT AND REMOVAL OF FIRE RETARDANTS SETTLED ON BUILDINGS, CONTENS AND LAND BY Patrick J Moffett, REA, CHMM Copyright 2008

SCRT / ISCRT Technical Bulletin Wildland Fire Retardants – Cleaning Basics By Jeff Bishop

And of course from your local Interlink Supply.