



SHELLAC FOR FIRE DAMAGE RESTORATION

What is so different or unique about fire-damaged surfaces?

Controlled fires – such as those in a fireplace, a furnace or a barbecue pit – usually involve the combustion of one particular kind of material, such as firewood (oak, hickory, maple, etc.), coal, fuel oil or charcoal. A house fire is an example of an uncontrolled fire that involves the combustion of many different materials, such as wood, plastic, rubber, paint, varnish, synthetic fabrics, etc. The smoke from a house fire is often very thick and laden with oily soot, with a powerful, acrid odor that permeates adjacent areas not yet consumed by the flames.

In most cases the fire is extinguished before it can completely destroy the structure, so the premises are further damaged by the water used to put out the fire. The water dissolves much of the soot and other by-products of combustion and carries them into any porous surface, such as wood, drywall, plaster, concrete, masonry, etc. The end result is that many of the surfaces in the structure that the flames never touched are affected by the fire in one way or another, whether it involves odor, water stains, soot deposits or mildew.

Fire damaged surfaces and structures are among the most difficult and challenging to successfully restore. In recent years an entirely new kind of professional – the Fire Damage Restoration contractor - has emerged as the most knowledgeable and reliable person to whom homeowners and insurance companies turn when fire has damaged a home or a business.

What is the best primer or sealer for fire damage restoration?

In addition to the direct damage caused by flames and heat, fire damage includes stains from soot and smoke deposits; stains from water used to extinguish the fire as well as mildew that often grows elsewhere in the structure due to the residual dampness and moisture. The most common element of fire damage is the acrid, pungent odor that permeates every porous surface. Although several methods of treatment (including ozone saturation) are used, none is completely effective at removing the odor itself. This can be a big problem if the odor-saturated surfaces have not been completely sealed, since the odor will eventually leach through any new drywall as humidity in the restored building increases.

The most effective fire damage primer or sealer is one with all the following properties:

- 1. Blocks all odors and all stains completely and permanently with just one coat**
- 2. Exhibits excellent adhesion over glossy or dense surfaces**
- 3. Has maximum square-foot per gallon coverage**
- 4. Dries quickly with minimal or no lingering odor**
- 5. Is not a food source for mildew growth immediately after application**
- 6. Cleans up easily, preferably with a minimum of waste solvent**
- 7. Can be used in colder temperatures for wintertime restoration projects**
- 8. Is available in a transparent version for application to rafters and other wood surfaces**
- 9. Relatively affordable and economical to use so that the contractor can solve the stain and odor problem in a way that allows him to minimize his material costs**



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What kinds of primers and sealers are used today?

These days the two most common products used to prime and seal fire damaged surfaces are “fast-dry alkyds” and shellac, which can be either pigmented or un-pigmented.

Fast-Dry Alkyds

These oil-base primer-sealers are made using a blend of natural oils and synthetic alkyd resins thinned with a combination of solvents that can include mineral spirits, naphtha, toluene, xylene and others. For the most other applications, fast-dry alkyd primer-sealers are dependable products. They are easy to apply using a roller or sprayer; they will block most stains from water, smoke and soot; they will develop good adhesion over a variety of surfaces. Generally, they are fairly inexpensive, usually ranging in price from \$9 to \$18 per gallon, depending on the quality and the brand.

Unfortunately, for fire damage restoration purposes fast-dry alkyds have several drawbacks:

Odor – Fast-dry alkyd primers usually have a powerful, pungent solvent odor that often lingers for days after application

Poor coverage – Their relatively low rate of coverage – about 275 to 350 square feet per gallon – offsets their low retail cost.

Rough pigments – The higher viscosity and larger pigment particle size of fast-dry alkyd primers tends to result in the need for higher airless sprayer pump pressures which, in turn, result in faster spray tip wear and greater product loss due to overspray.

Limited stain blocking – Solvent based alkyd primers are unable to completely block oily or solvent-sensitive stains from grease or oil fires and have a limited ability to permanently block complex or concentrated water and smoke stains

Poor odor blocking ability – The resins used in fast-dry alkyd primers are not inherently odor-blocking, so two and sometimes three coats may be necessary to completely and permanently seal in odor-saturated surfaces

Mildew-prone film - When dry, oil-base and alkyd base primers are an excellent source of food for mold and mildew, which often begin to infest fire damage structures days after the fire is put out

Difficult to clean up - Application equipment must be cleaned with mineral spirits or paint thinner which must then be removed from the job site as hazardous waste

Not for low temps – Although oil-base products will not freeze like water-base primers, they still cannot be used in cold temperatures (40° F and below) because they will dry much more slowly (or not dry at all in freezing temperatures)

Pigmented only – Fast-dry alkyd primer-sealers are only available in pigmented form, precluding use as clear sealers over uncoated wood



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Shellac

Shellac is an alcohol-based solution of pure lac, a natural resin secreted by tiny insects on certain trees in Asia and India. After it is harvested the dark, reddish-brown resin is crushed and then processed into flakes that are dissolved in denatured grain alcohol. The resulting liquid has a pronounced reddish-orange color. If the harvested resin is bleached beforehand, it will create a coating that has a very light straw color. Bleached shellac solutions are mixed with clays and titanium dioxide to create white-pigmented shellac. Shellac-base primer-sealers retail for between \$18 and \$25 per gallon.

Both clear and pigmented shellac have numerous advantages that make them well-suited for fire damage restoration:

Easy to use – Shellac is easily applied with a brush or roller. Because the stain-killing and odor-blocking power lies in the resin – not in the fillers – pigmented shellac has a very small particle size that gives optimum coverage and hide at lower spray pressures, thus reducing over-spray, pump stress and tip wear.

Excellent spread rate – The lower viscosity of shellac gives it a much higher spread rate than fast-dry alkyd primers – in many cases a single gallon of shellac-base primer-sealer will cover 75% to 100% more surface area than a single gallon of alkyd primer.

Super-fast dry time – Shellac dries to the touch in MINUTES and, in most cases, can be recoated in forty-five minutes.

Clean, alcohol odor – Shellac is dissolved in denatured ethyl alcohol. It has a familiar antiseptic odor that dissipates very quickly as the product dries. When dry, shellac has no residual odor whatsoever.

Biocidal effect – Alcohol is a well-known biocide and shellac resin is not a particularly tasty food source for mildew. This makes shellac an excellent choice for application to mildew-stained and mildew-prone surfaces in an environment where mold and mildew spores are rampant.

Sticks to glossy surfaces and finishes – Shellac has incredible adhesion and sticks to just about anything, including glass, ceramic tile, stainless steel, Formica[®], melamine, etc.

Impervious to odors – The unique molecular structure of shellac resin renders it impervious to odors. Just one coat applied at container consistency will completely and permanently seal any kind of odor in any porous surface. No other coating can make this claim.

Seals all types of stains – The nature of the resin coupled with an incredibly fast dry time enables shellac to effectively block almost every type of stain, including stains from water, oil, grease, soot, smoke, nicotine, mildew, mold, marker, pen, graffiti, tannin bleed, wood sap, etc.

Cold temperature application – Unlike other coatings shellac can be applied in cold or even freezing temperatures (40° F. and below) without concern over proper drying and curing.

Easy to clean up or remove – In addition to alcohol shellac can also be dissolved in ammonia. This means that contractors can clean their application equipment with a solution of ammonia and water and simply pour the wash water down the drain, as it is not considered hazardous waste.



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Shellac drips, spill and overspray can be removed by washing the surface with alcohol or with a strong solution of ammonia and water. Even commercially available cleaners such as Fantastik® and Formula 409® will easily dissolve and remove splatters and drips.

Does shellac have any drawbacks?

Shellac is made from a natural resource that is harvested in only a few places in Asia and India. As a result, the price of the manufactured coating will rise or fall with the cost of the raw material. In general, shellac tends to cost more than synthetic alkyd primers – sometimes twice as much per gallon. Whether or not this is a problem will depend on the contractor.

If shellac-base primers are more expensive than alkyd primers why use them?

Experienced contractors and contracting firms understand that the cost of materials for any given restoration project represents a minor percentage of the total cost; the lion's share of the cost is in the labor.

Fire Damage Restoration companies concerned with the quality and reliability of their materials will generally use shellac-base primers for most of their fire-damage projects for two primary reasons:

- 1. They know that they can depend on the permanent stain-sealing and odor-blocking properties of shellac-base primers**
- 2. They will save a lot of time and labor since only one coat of shellac is needed to properly prime the surface. Furthermore, it will be easier to clean the equipment afterward and the contractor will not have to worry about disposing any hazardous waste solvents.**



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The Contractor's Choice for Fire Damage Restoration

B-I-N[®] Shellac-Base

Primer-Sealer/Stain Killer

- Permanently blocks water stains, smoke stains, etc.
- Completely seals in odors from smoke and fire damage
- Dries in 15 minutes; can be recoated in just 45 minutes
- Primes and seals all interior surfaces – including floors
- Bonds tightly to glass, metal, tile and other glossy surfaces
- Compatible with latex, alkyd, epoxy, lacquer & other finishes



Your Choice for Dependability

Even minor house fires leave behind smoke, soot, water, foam, and other staining residue – including an acrid smoke odor that permeates every part of the building. Oil-base primers cannot eliminate stains or block odors in these surfaces nearly as effectively as 100% shellac-base B-I-N. No synthetic resin has ever been able to duplicate the unique, consistently reliable, odor and stain sealing power of pure, natural shellac. For this reason B-I-N is one of the most dependable and sought-after odor blocking stain killers on the market today and is the first choice of specifiers and fire restoration contractors who want the job done right the first time.

Your Choice for Efficiency

B-I-N is easily to apply, has great coverage and develops tenacious adhesion to almost any surface, including ceramic tile, glossy enamel paint and glass. B-I-N blocks all types of stains including the worst water and smoke stains as well as offensive smoke odors. B-I-N seals porous surfaces and dries quickly – even in cold weather – making it ideal for high production and time-sensitive work.

Your Choice for Economy

B-I-N has a low-viscosity, high solids, fine pigment formula that gives optimum coverage and hide at lower spray pressures, thus reducing over-spray, pump stress and tip wear. Because it has a high enamel holdout, less topcoat paint is necessary. B-I-N will cover 500 square feet or more per gallon – that's over 60% better coverage than conventional fast-drying oil-base primers. One coat of B-I-N does the job effectively and is more economical than multiple coats of less expensive (and usually less effective) primers.



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Still not sure? Compare the cost of using an alkyd primer with the cost of using a shellac primer:

Let's say a contractor just got a restoration project consisting of approximately 6,500 square feet of interior surface area. The insurance company has set the rate at \$0.40 per square foot and so the contractor can expect to receive \$2,600 for the job – regardless of the cost of either materials or labor. Let's do the math and see just how economical B-I-N really is.

PLAN A – Use a less-expensive fast-dry alkyd primer

Cost of alkyd primer:	\$10 per gallon
Sq. Ft. Coverage	275 to 350 sq. ft. per gallon, averaged at 300 sq. ft. per gallon 2 coats will be needed to ensure full odor encapsulation
Gallons for coat #1	44 gallons (6,500 / 300 x 2) @ \$x.10 per gallon = \$440.00
Cost of primer:	\$0.67 per square foot
Cost of labor:	\$0.10 per square foot per coat = 6,500 x .10 x 2 coats = \$1,300
Total cost of job:	\$1,740.00
Total Profit:	\$860 (\$2,600 - \$1,740)

PLAN B – Use a shellac-base primer

Cost of shellac primer:	\$20 per gallon
Sq. Ft. Coverage	475 to 550 sq. ft. per gallon, averaged at 500 sq. ft. per gallon Only 1 coat will be needed to ensure full odor encapsulation
Gallons required	13 gallons (6,500 / 500) @ \$20 per gallon = \$260
Cost of primer:	\$0.40 per square foot
Cost of labor:	\$0.10 per square foot per coat = 6,500 x .10 x 1 coat = \$650
Total cost of job:	\$910.00
Total profit:	\$1,690 (\$2,600 - \$910)

What if the contractor believes that just one coat of alkyd primer will be enough?

PLAN C – Take a chance and use only one coat of less expensive fast-dry alkyd primer

Cost of alkyd primer:	\$10 per gallon
Sq. Ft. Coverage	275 to 350 sq. ft. per gallon, averaged at 300 sq. ft. per gallon
Gallons used	22 gallons (6,500 / 300) @ \$x.10 per gallon = \$220.00
Cost of primer:	\$0.67 per square foot
Cost of labor:	\$0.10 per square foot per coat = 6,500 x .10 x 1 coats = \$650
Total cost of job:	\$870.00
Total Profit:	\$1,730 (\$2,600 - \$870)

Cost difference between one coat of B-I-N and one coat of fast-dry oil-base? \$40.00

The contractor who chooses to apply only one coat of alkyd primer runs the risk of a call-back and major headaches in order to make only \$40 more than he would have made if he used shellac-base B-I-N. If a call-back does occur, it will likely necessitate a complete repaint of the premises at the contractor's expense, which will cost him a LOT more than \$40!

Gallon for gallon, square foot for square foot, shellac-base primers are the most effective, dependable & economical fire damage primers available.