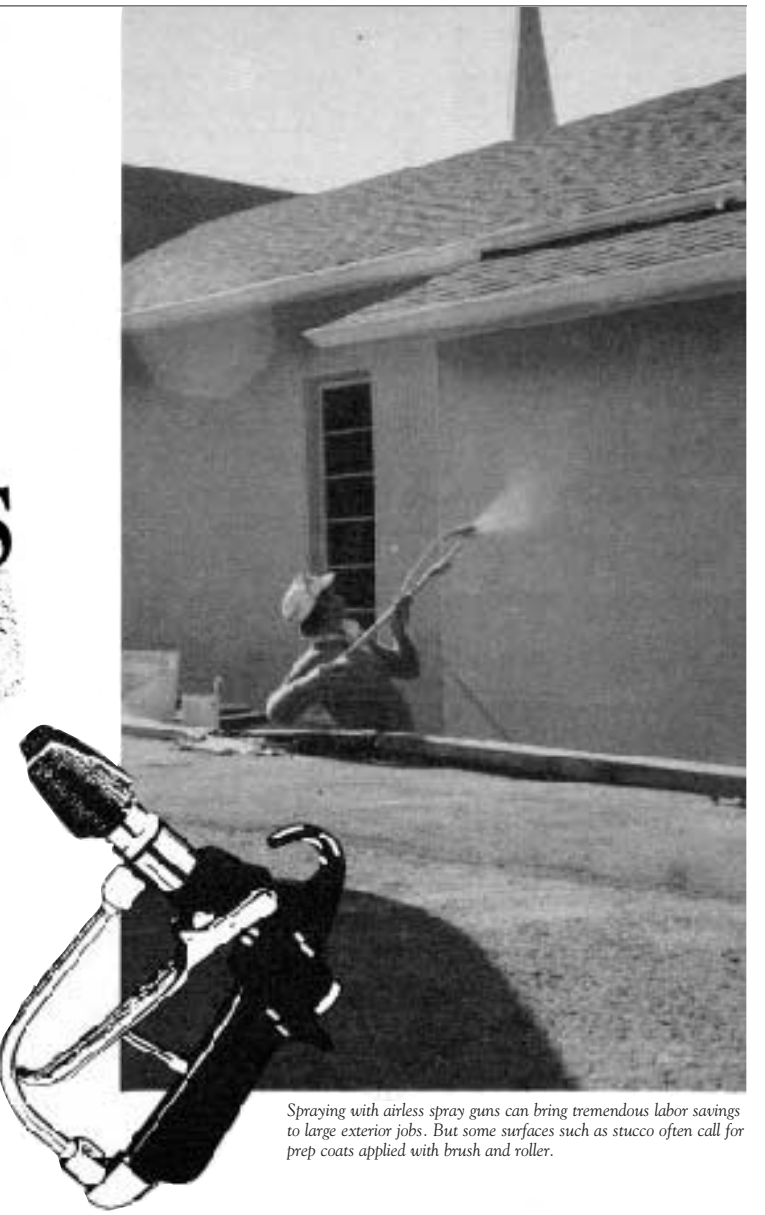
Spray Painting Decisions

Experience and job conditions dictate whether you brush-coat– or fire up the airless

by Steven Simmons



Spraying with airless spray guns can bring tremendous labor savings to large exterior jobs. But some surfaces such as stucco often call for prep coats applied with brush and roller.

Twenty-five years ago, the handyman magazines promised us that someday we'd be able to change the decor of a room as easily as changing clothes—just plug a hose into a wall outlet, press a button for color selection and squeeze the trigger.

Today's airless sprayers come pretty close to this description. For large expanses requiring a single color, the labor savings can be truly impressive. Indeed, the speed that spraying offers has changed the painting profession, much as nail guns have in the carpenter's trade. But just as pneumatic nailers don't exempt you from paying attention to basic structural requirements, neither does spraying magically allow you to ignore fundamental painting principles.

I spray a lot, but the decision is by no means automatic. Spraying is a tool—appropriate for some situations and not for others. I spray when it will improve the quality of my work or save me time without sacrificing quality.

Different Strokes

As a residential painting contractor in the San Francisco Bay area, I see a real variety of conditions and materials. Much of my work is general exterior and interior painting (both old and new), but I also specialize in architectural finishes including marbleizing, graining, and tromp l'oeil.

I guess that's why I'm suspicious of painting contractors who spray all of their work—the "blow-and-go" painters who keep their finger on the trigger until the entire surface is covered. Their skill is speed—appropriate in production situations—but it often pushes aside attention to detail and adherence to sound painting principles.

For instance, the trend is to spray one coat of latex on drywall without any sealer. It's cheaper, quicker, and initially hides construction defects, but the client is left with a film that doesn't wear or recoat well. Woodwork often gets only one coat of enamel—usually water-based—over a single sealer coat, instead of being leveled with oil-based enamel undercoater and then given several thin coats of more oil-based enamel. Exteriors are treated in the same minimal way.

Evaluating a Job for Spraying

I decide whether to spray or brush based on the particular conditions and materials as well as my own abilities and experience. It's not a decision I let others make for me, nor is it one I make without seeing the job. I begin by looking at the scope of a job and asking these questions:

- Is there enough area to justify spraying (two gallons is the minimum amount of paint I'll use with an airless sprayer). And will the extra paint required for spraying (as well as the two quarts to one gallon necessary to operate the equipment) be offset by the savings in labor?
- Will the time it takes to set-up,

mask-off, and clean-up be justified by what I'll save in actual painting time using spray equipment?

- Can the shapes, sizes, kinds, and amount of surface area I'm dealing with be painted faster or look better in a sprayed finish? (see Figure 1).
- Is the primer or finish coat I'll be using better suited for spraying, or brush and roller? Or are there equivalent coatings that can be sprayed?
- Will spraying allow me to build up multiple coats without significantly increasing the cost or time spent?
- Are job site conditions (including weather) right, or am I taking a risk with overspraying?
- Will the job sequence make spraying practical?
- In confined spaces, do I want to expose myself and my crew to the volatile vapors?

Figure 1. *In addition to saving time, spraying can also make life easier in hard-to-reach places like the underside of this overhang.*

Exteriors

Although appearance is important, it's the durability of an exterior paint job that counts the most since the paints must protect the building shell. I put a lot of work into the first coat to make sure it penetrates properly because poor first coats are the most common reason that exterior paints and fillers fail.

As a general rule I prefer oil-based materials as first coats on exterior surfaces. I also prefer rolling or brushing the first coats on raw wood and older masonry surfaces. Sprayed sealers don't get in crevices and joints like conventional methods, so caulking of masonry, wood, or masonry-to-wood joints, for example, will not hold as well. Also, spraying is not as practical for spot priming and leveling surfaces as brushing. Spraying sealers on smooth masonry surfaces works well, but many of the better undercoaters that I have sprayed on smooth wood surfaces in the past have been removed from my market area due to new EPA regulations.

On previously painted exterior surfaces, adhesion is the major concern rather than penetration. I spray flat latex and stains when the surface merely needs cleaning and recoating, but these jobs usually require more serious repair and surface preparation. How much remedial work I have to do affects my decisions as to whether to spray.

Wood siding. I prefer to work primer into wood siding rather than spray it, because in my experience, rough-sawn surfaces aren't evenly coated b spraying. The higher points get paint but the recesses remain unsealed, which will cause an unevenness of sheen with future coats. To compensate, the tendency is to spray more heavily, but this results in a coat that is either too thick to cure properly or thin enough to run and sag.

Grooved plywood siding such as T-111 isn't a good candidate for spraying either if appearances are important. In this case, it just isn't possible to fill the groove with spray and not overspray the adjoining panels. This causes the same problem of uneven paint distribution (see Figure 2). However, sometimes I use spray equipment to get the material on the wall quickly so that I can work it in with a roller and brush.

I do use spray equipment on smoother wood surfaces such as overheads, V-groove siding, and eaves (see Figure 3), as well as fences, rails, and decks. The time it takes to cut in with a brush and roll is greatly reduced, and the consistency of a spray finish reduces the lapping or sheen changes you can get with exterior acrylics.

I spray some stains. Latex stains are fast and simple to spray, although I see them more for cosmetics than lasting protection unless expensive products such as Cabots are used. Oil stains are much more difficult to spray evenly on vertical surfaces, inside corners and small objects without runs, sags, drips, and sheen changes. I usually keep a roller and brush handy to even the stain out in these situations. You also have to watch the overspray from oil stains—it is very fine and extremely hard to control unless it's dead calm.

I don't normally spray exterior, oil-based enamels. Generally they are used on small isolated areas, which makes setting up to spray them impractical.

Figure 2. *With rough-sawn textures and grooved plywood siding, brush and roll the first coat for good penetration and even distribution. Subsequent coats can be sprayed as shown above.*

Figure 3. *Eaves are typically a good choice for spraying since their smooth surfaces accept paint evenly. However, take full precautions against overspray—tarping, masking, and just plain vigilance.*

Masonry surfaces. Although it's usually only given three to six weeks, new stucco should ideally cure for six months before painting. Small areas can be painted sooner by washing the surface with muriatic acid to neutralize the alkalinity. Otherwise the paint will peel off from the inside out.

There are several ways to make sure the first coat penetrates properly. One is to brush and roll the first coat to work it below the surface of the masonry. (Despite spray equipment manufacturer claims to the contrary, I find that sprayed paint or sealer tends to sit on the surface with less of a mechanical bond to the wall).

The other method uses spraying, but draws on the old technique of dampening the stucco first and thinning down the first coat with water. This combination draws the material into the masonry as it dries. However, it's tricky to get the paint consistency and surface moisture just right so that you avoid runs and sags from too much moisture and still get the osmotic effect that you want.

I typically spray finish coats on stucco as long as the troweling or texturing is either relatively smooth or uncommonly rough. In between, it pays to use a roller and brush.

Frequently I have to pressure wash or even sandblast stucco because the coating is failing back to the raw masonry or because a flat latex had been applied over a glossy surface. At this point I usually have cracks to fill or texture to even out. After completing these repairs, there are two methods I use.

One is to brush and roll on a heavy-bodied, fibrous or gritted conditioner (these are hard on residential-sized spray equipment), and then spray the finish coats. The other is to first spray on a masonry sealer, then brush and roll an elastomeric terpolymer (VIP of Hudson, Ohio and Triangle Coatings of San Leandro, Calif. are two manufacturers I use), and finally spray the finish coats. I use the first method where minor cracks are easily bridged. In troubled areas (up to 20 percent of the surface) I'll apply some elastomeric too. I use the second method where one-quarter or more of the wall surface needs help with moderate surface cracks. At the same time I do the wall surface, the second method also allows me to seal wood trim and then caulk it with the elastomeric where it adjoins the masonry.

Although the elastomeric coating can be tinted to many light- and middle-range tones and can be used as a finish coat where surface expansion and contraction are unusually great, I prefer to spray acrylic-latex finish coats because they are easier to touch up and recoat quickly.

Interiors

When it comes to spraying inside, I am reminded of an episode of Barney Miller. A man arrested for robbing a bank with a bazooka is looking for sympathy from the detectives but getting none. He asks if any of them had ever fired a bazooka before. When one answers he had, the thief retorts, "Sure, outside!"

Spraying interiors isn't quite this bad, but things do happen in a hurry, and it pays to double check that masking is tight and that tarps overlap so spray bouncing off the walls won't end up where it shouldn't. It's also a good idea (especially with enamels) to vacuum thoroughly first, so dust particles aren't blown into the wet paint.

Walls. Spraying inside follows some of the same principles as outside. Bare drywall, for instance, is better rolled than sprayed with sealer for full, even coverage of subsequent coats (the slight texture that rolling leaves also helps hide joint flaws in smooth-wall work). Again, supplying material with the sprayer and rolling behind it is a good combination. Spraying latex finish coats is simple, even for the inexperienced.

Woodwork. Interiors don't experience hot/cold, wet/dry cycles like exteriors, so I spray primer on interior woodwork frequently. However, brushing does level the surface and fill joints much better than spraying, so you're looking at still another judgment call.

Spraying primers and finishes on woodwork can be a big time savings if there are built-ins, crown moldings, doors, windows, jambs, and trim to be done. I usually spray the woodwork if it will take longer to brush than the time it takes to brush and roll walls and ceilings. I typically don't set up to spray unless I'll be spraying at least two coats, but I'm often able to spray all coats except for the flat wall finish or finish enamel.

Spraying oil-based enamel is tricky, and has both big advantages and disadvantages. On the downside, it leaves little room for error—the proper tip, consistency of material, and speed of

spray pass are all crucial. Low-sheen enamels are difficult to spray over large areas because the edge of the spray may leave dulled lap marks. And sprayed enamel is difficult to touch up, often requiring the entire surface to be recoated.

On the plus side, a sprayed enamel finish is usually more consistent in appearance than a brushed or rolled texture (although this produces amore matte finish that isn't always appropriate in older residences). You can also produce a high build with sprayed enamels by laying on a thin tack coat and then following with multiple coats of the same enamel without allowing the preceding coat to fully cure. The time it takes to roll and brush doesn't allow you to duplicate this effect. And spraying highly detailed or curved surfaces produces a much more even and attractive job in a much shorter time than brushwork.

Equipment

There are lots of airless sprayers, guns, tips and accessories out there (See inset, lead photo). I own a Titan wand gun with adjustable fan tips and telescopic extension, as well as titan and Graco guns with flat, pre-atomizing, and quick-change reversible tip systems.

For most spray situations any of the professional pumps—from the small diaphragm-type to the large piston pumps—supply enough material. The gun itself is also less impressive than it might first appear. Basically, it's a valve—it opens to allow paint to reach the tip, and closes to shut off the supply of paint.

The most important piece of equipment is the tip system. I favor the quick-change reversible tip systems for most spray situations. The range of tips commonly used are 12- to 16-inch wide fans with a .017 orifice for latex paint and 0.15 to .011 for oils and stains. The combination of pressure, paint characteristics, and tip should result in a spray that is fine, even, full, and works at the speed you can consistently and easily manage.

For finer finishes with enamels and lacquers, I generally use a conventional sprayer, a compressor and pressure pot, or a cup-gun system. Airless sprayers put out too much material too fast for my taste in this situation. A system I have only used once but seems promising is the cap- or turbine-powered sprayer. These units shoot more like airless sprayers but use heated compressed air at about one-fifth the pressure with half the overspray. They also shoot a finer spray than conventional sprayers.

Almost as important as the spray equipment itself are the masking machine, tarps, plastic, and spray shields. The masking machine dispenses tape and paper together and makes masking practical and fast. I will occasionally use shields to cut edges (rather than masking), or to protect corners and edges from overspray.

Clear, lightweight, embossed plastic quickly isolates areas and covers windows while allowing light in. Use it rather than a tarp to drop over objects. However, use tarps anywhere you might walk inside, since it is easy to track overspray.

Basic Technique

The basics of spraying are quite simple. I always prepare the paint or stain by straining it, then thinning it if necessary. I usually leave the strainer in a five-gallon bucket with the intake tube entering above the top of the paint level so the paint must continually strain itself as the paint level lowers.

I test the spray pattern on the wall with a roller or brush handy in case of sags or drips, and adjust the pressure until the fingers (patterns of dense spray with voids in between) disappear from the spray pattern. Failure to adjust the tip, material, and pressure results in a spray that does not cover evenly, and the areas of light and heavy coverage are plainly visible when the finish dries. The temptation is to spray anyway to get the job done and merely spray more material to disguise the poor fan quality. This usually compounds the problem, however, by producing drips and sags, and still doesn't get rid of that striated look.

The mechanics are also straightforward. I hold the gun with my wrist locked. As I move, I trigger the paint on, then off, and then stop the motion. The gun remains the same distance from the surface and perpendicular to it. Breaking the wrist or spraying at an angle causes poor coverage and dusts adjacent surfaces. Applying this principle, inside and outside corners are sprayed head on, rather than each wall being treated separately.

I generally spray out the boundaries of an area I can reach in this fashion, then fill in. Aiming at the bottom of the preceding stroke means that half of your fan is lapping the already painted area. This way, everything gets double lapped as you proceed.

Precautions

Like any tool that can do a lot of work in a short period of time, spray equipment can also do a lot of damage. Windblown overspray creates the worst horror stories (see "Cloud Without A Silver Lining," at left). But spraying also has risks for the painter. If I spray oil-based paint or lacquer indoors, I use cold cream on my face, wear a hood, a respirator, clothes that cover all exposed areas, and cotton gloves. I use "glove coat" (a chemical-resistant ointment) on my hands to keep the thinner out and make clean-up easier. I always try to provide ventilation, especially when the materials are volatile. But realistically, even with ventilation, spraying a volatile material indoors means exposure to its vapors. So I try to limit my indoor-spraying of this type of material. Painters who don't, end up with what are descriptively called "night sweats." ■

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Overspray: The Cloud Without A Silver Lining

The nightmarish "downside" of spraying is overspray. The following case studies (in italics), and advice on prevention and settling claims are adapted from an article prepared by the Insurance/Safety & Loss Committee of the Painting & Decorating Contractors of America.

A painting contractor using airless spray equipment was spraying dry fog paint on the exterior of a tower. North and northwest of the tower were two parking lots containing more than 800 automobiles. The contractor, who was experienced and knowledgeable, considered the materials, distance to nearest auto, temperature, and method of application. Despite his efforts, he painted more than 800 automobiles with total damages in excess of $200,000.

Prevention

The key element in overspray prevention is planning. The time to think about overspray is before the work is done. Check the site for daytime and nighttime wind directions an the number of cars parked in nearby lots. You may want to consider working "after hours" when the wind is usually down and parking lots are often empty (light plants can be easily rented from large equipment rental companies). Or you may choose to rent nearby parking—to clear the area—during work hours.

In addition, consider sending the following extra equipment to the jobsite:

- Several large *SPRAY PAINTING IN PROGRESS* and *PARK AT YOUR OWN RISK* signs
- Car covers in various sizes
- Barricades or barricade tape
- Tell-tales (cardboard placards to detect overspray)
- Wide polyethylene for covering large objects
- A journal to record wind direction, color used, and placard locations
- Rags and a container of clean solvent for on-the-spot cleanup of minor overspray
- Flags to judge wind direction and speed.

One West Coast contractor uses large pieces of black cardboard as tell-tales to detect overspray. He posts them at predetermined locations, logs them with the time and date and saves them for use in the event of a claim.

He also positions a man at ground level to control traffic, ensure that car covers stay in place, and to monitor overspray. Flags mounted at various levels and locations near the area being painted will help judge wind velocity and direction.

The proper material (paint) and equipment selection are also extremely important. Using conventional spray equipment to spray oil-based house paint onto wooden lattice on a windy day is just asking for problems. Items affecting the drying time of coatings include: temperature, dew point, relative humidity, wind speed, amount of solvent, type of solvent, amount of pressure, etc. If you don't feel qualified to judge which material to use, ask the material supplier and get it in writing.

Not all accidents occur outside. A contractor was spraying elevator doors with red enamel in the lobby of an apartment building. The updraft in the elevator shaft blew the red enamel onto white carpeting on every floor above the lobby level in this multi-story building. The contractor was clever enough to hire a firm to "sand down" the top layer of carpeting and thus remove the overspray, but not without considerable cost to his company.

Many building superintendents will work with you to adjust the air flow within a building while you are spraying, especially if you are working "after hours."

Settling Claims

Claims reports are used by many contractors to establish that the damage was (or was not) caused by their operations. They feel that people filing claims should have to work to validate a claim. Others think that burdensome paperwork only makes the claimant more determined to maximize the claim. You should, at the very least, determine by visual inspection each alleged overspray claim to make sure that the material on the vehicle came from your operations.

There are many advantages to making the determination quickly and dealing with it quickly. They include the possibility that the claimant may not be as apt to tell her/his co-workers about the experience.

A midwestern contractor was rolling aluminum onto the chain-link fencing at a refinery. The purchasing agent told the painting contractor that he had oversprayed a few employee's cars and that the contractor would have them repainted. The sorry contractor got dozens of claims that he turned over to his insurance company—no questions asked. It was only after he talked to his adjuster that the contractor learned that there were several two-car claims by the same owner. One plant employee had driven his car one day, then after learning about the overspray, drove his mother's and his sister-in-law's cars to work on consecutive days!

If you are given the opportunity to clean a car immediately, do so—quickly and carefully. Record the license number of the car and obtain a signed release, if possible. If the overspray is still wt, and the owner refuses to allow you to clean it, record the license number, make, and model of the vehicle.

When practical, arrange with a nearby auto cleaning/waxing or detail shop to handle rubouts for a fixed, per-car fee. If you can send a valid claimant to this shop immediately—after obtaining a signed release—you will save time, paperwork, and will generally settle the claim for less. Check with your insurance agent to not only determine your deductible, but to get his advice regarding claiming versus self-paying.

It is important to have competent, experienced supervisory personnel on a job that may involve overspray. Instruct workers never to admit fault, but refer complaints to their supervisor. Give that supervisor the authority (and the cash) to settle claims as necessary. Do not ignore complaints. One claimant with a competent attorney can turn a simple $200 rubout into a brand new Ferrari without even breaking into a sweat.

—Adapted with permission from the September/October 1988 issue of Painting and Wallcovering Contractor.