



This exotic finish started with a zinc chromate primer. Two coats of bronze finishing were added followed by a light sponging of green patina. The bronze was then sponged back on top and the piece was coated with clear sealer. Finish by: Barbara Schule & Jim Williams Decorative Arts. Owners: Bart and Nancy Green.

## Beautiful Finishes

By Nancy Hollerbach

If you're tired of finishing jobs in the same few colors, then chances are your clients are getting tired of seeing them too. Why not get a little creative and try an exotic finish on your next creation?



The finish system consists of two coats of zinc chromate, two coats of copper coating, and then the green patina. Fabricator: Flaherty Iron Works Inc.

Antique and weathered-looking finish products provide the ideal look to accent any ornamental metal job. Many fabricators may hesitate to try a special finish because they assume it's too difficult, but pre-made mixes can greatly simplify the job.

At the same time, clients may rule out an exotic finish because it is perceived as expensive. The good news is that with liquid copper, brass, or bronze coatings you can offer your customer an actual metal finish with an oxidized patina verdigris finish at a favorable cost.

Most everyone has encountered verdigris finishes, which are the most common exotic coatings. Typically, a verdigris look is achieved by painting various colors of green and black paints over wrought iron, steel, or aluminum. Sometimes this creates a nice faux finish and other times it does not.



**The exotic finish on this stairway began with a coat of zinc chromate primer. After priming, two coats of brass finish were applied and the copper was sponged on randomly. Next, a light green patina was splattered on, followed by a sponging of burgundy patina. Some copper and brass were then sponged on at random. As a final step, the assembly was "fogged" with a clear sealer. Finish: Barbara Schuhle & Jim Williams Decorative Arts. Fabricator: Umili America**

There are several products on the market that can expand your line of finishes and allow you to offer clients a quality, high end look. The subtle difference is that the metal coating used is a unique and inexpensive alternative to that of tubular stock, or cast copper, brass, or bronze metals.

The liquid copper, brass, and bronze coatings that you can buy are a special blend of heavy acrylic with pure ground metal solids suspended in a specially formulated air curing water base emulsion. After curing, the liquid forms a flexible skin that provides excellent adhesion to substrates. It provides a lasting metal finish without the limitations, expense, or maintenance problems of the natural metals. The liquid coatings were originally developed to simulate solid copper on roofing and have been used successfully for that purpose for over 20 years.

Typically, galvanized metal is the most common surface where liquid coatings are used. However, they work with great success on wrought iron, steel, aluminum, sculptures, and statuary.

The liquid brass coating is good for applications where the appearance of gold is desired. Combined with a green patina, it creates a soft verdigris look. For a mellowed "brown" look, liquid bronze works nicely, and when the green patina is lightly applied it gives subtle variations of the bronze metal with the oxidized black and green shades. The more heavily the green patina is applied the more pronounced the verdigris color becomes. Usually, in normal application, the more vivid green will naturally appear in crevices and other areas of detail where the solution might "puddle."

The liquid copper coating has a bright "new penny" finish when first applied and over the years it will gradually darken and bronze. As with the other metal coatings, it does **not** achieve a verdigris finish under most normal conditions. If the verdigris finish is desired, then the green patina solution must be applied at the same time as the copper coating.

For metals susceptible to rust or corrosion, such as wrought iron, steel, or mill finish aluminum, some basic preparation is necessary. Prepare your metal as you would customarily do for any painted finish. The metal should be primed with one or more coats of a primer such as zinc chromate or a two part epoxy. It is advisable to consult with the substrate manufacturer or primer supplier for their recommendations. Any metal surfaces that show rust should be cleaned with a rust remover and then treated with a rust converter before applying the primer. The purpose for using either of these two primers is that they are able to block the corrosive effect of the green patina. Just as the patina will oxidize the copper into a green color, it will also – without protective primers – oxidize the metals with rust.

Once the surface is properly prepared the liquid metal coating can be applied by using a roller, brush, or spray (airless or high volume/low pressure). Spray application gives the most uniform finish and is the recommended method of application, however proper brush or roller techniques can give excellent results. Always mix the metal coatings thoroughly and strain through a paint straining bag.

Apply the first even coat and allow to dry for 24 hours. If in a jam, and depending on temperature and humidity, you may be able to get by with as little as 5 hours of curing time. By using a shorter time frame, you can work in the two ideal times of day by applying the first coat early in the morning and then applying the second coating later in the early evening (cool part of day). Working in cooler temperatures is especially important if you don't have the luxury of doing the application inside your shop. Painting during the heat of the day or in direct sun should be avoided.

Once you have laid down your first coat of copper coating and it has cured you theoretically have a copper substrate. You are now ready to begin creating the verdigris finish. To do this there are various "creative" ways to apply the second coat of copper. This largely depends on your client's preference. You might want to show them two or three different types of coverage. The most common second application of copper is usually done the same as the first coat, by spraying or brushing.

The following are some recommended techniques to achieve the verdigris finish. They

are not the only techniques that can be used; many people like to experiment and develop their own methods.

It is important to apply the green patina solution to the second coat of copper when it is fresh and uncured. Within the first 5 to 10 minutes, you can begin misting sparingly with a plastic spray bottle, or if a large job, a garden pump sprayer. These times will vary at different seasons of the year and in different weather conditions. Never use mechanical spray equipment with metal parts to apply the green patina solution because it is a corrosive and may ruin the equipment. Adjust the tip of your spray bottle to a fine mist and wet the surface but do not drench. Misting will achieve the most uniform oxidation of the finish, and there will be variations with highs and lows. Don't expect a completely uniform finish. I prefer to leave some of the metal coating free of patination so that you can appreciate the aesthetic contrast of the metal coating and verdigris.

A slight variation of this application is to do a combination of spray and sponging. When the second metal coating is tack-free, (just dry to the touch, about 10 to 15 minutes after application), mist on the green patina. Where the spray impact is the heaviest take a natural sea sponge and blot the excess and create a random blotting pattern. This method will create a mottled or tortoise pattern effect. The technique also captures any excess running of patina and reduces puddling on any lower horizontal bar. If drip or run lines are desired I find it is easiest to add them after the above process by taking the spray bottle and lightly squirting a few drops into some of the blotted areas at very close range. One or two very short partial squirts are usually enough to make a line without creating a puddle at the bottom.

Should you find that once you have finished the patina application there is still too much verdigris showing, it is simple to rinse the area with water and lightly sponge over with the metal coating.

The following is a method of application I personally enjoy: Use a sea sponge and sponge a "gloppy" pattern of metal coating on the surface during the second application. Then, with a spray bottle, saturate the second sponged metal coating with the green patina. The end result is the appearance of very aged metal with a heavy encrustation of verdigris.

It is not generally recommended to coat a verdigris finish with a clear sealer, except when there is going to be handling or touching of the finish, such as a hand railing or a pedestrian entry gate. The green oxidation can rub off on hands or clothes, and also the oils from repeated handling will darken areas of repeated contact. Another consideration for sealing the verdigris finish is when the natural oxidation from surrounding surfaces can cause a staining problem. If a sealer is used, it should not be applied until the finish has had at least 2 to 3 days to develop and mature. This extra time is important because there is a natural binding process that occurs between the patina finish and metal. If the finish is left without a sealant the verdigris finish will continue to self-perpetuate.

One of the things I find interesting is that on ferrous metals you have the ability to create five different finishes with just two products, which is nice because you don't have to stock a variety of materials. The two products you need are the green patina and usually the copper coating. With them, you can create the following variety of finishes:

- ❖ **Classic verdigris** - Combine zinc chromate primer, copper coating, and green patina.
- ❖ **Simple copper appearance** - Use primer and copper coating.
- ❖ **Copper, verdigris, and rust finish** - Eliminate the primer; use the copper coating, green patina.
- ❖ **Natural rust finish** - No primer, green patina.
- ❖ **Copper glaze** - No primer, green patina. Because of the patina formulation you can, in two different techniques, achieve a copper glaze. With the first method, you stand watch over the metal after application and when you see the galvanic reaction take place after a few minutes, neutralize the patina by rinsing with a baking soda/water solution, rinse with fresh water, and then dry and seal. The second technique is to allow the metal to rust and later burnish it to the copper glaze with a wire brush, and seal. It is very important to seal this finish as soon as possible.



This finish is copper with green patina.

Fabricator: Classic Design in Iron.

### **Beyond Verdigris:**

There are a number of other finishes that are becoming more popular. Two of these are the rust and the Etruscan look.

It is very easy to create a new rust finish on ferrous metals by simply applying by brush

or spray the "green patina." (The names for most patinas were given originally because they were first developed to create a reaction with nonferrous metals. Being so very original the color they created was the name they got.) The rust will develop within half an hour. When you have the desired effect, you need to neutralize the patina with a baking soda/water rinse, using a ratio of 1 tablespoon to 1 quart. I find the most consistent and long lived sealant to use over a natural rust finish is to rub in linseed oil. With this you don't have to worry about clear coats peeling or flaking off.

If you are working with aluminum you can also create a rust finish by using some of the pigment patinas available. These patinas are not dependent on the metals for their color; they are specially blended powdered pigments suspended in an aqueous, acidic solution that etches into the metals. They leave a similar texture as the oxidizing patinas, which is a powdery, matte, finish. By using a combination of misting and sponging on the rust patina, you can get a new rust finish. To age this or give it more character I lightly add a bit of umber patina, which gives a sense of age and character.

This type of rust patina has its advantages when the finish you are doing is over a ferrous metal and the installation is one you will apply a clear coat on and you don't want to worry about the rust continuing to oxidize.

An "Etruscan" look makes an item look like it is made of ancient bronze and was dug out of the hills of northern Italy. This finish can be very attractive on ornamental legs or bases for tables, chairs, and other furnishings. I generally use the copper as a base by misting green patina over the first coat of copper, allowing it to cure, and then applying the second coat of copper over the patinaed finish. This will cause the copper to "mellow" just a bit. I then mist/sponge mostly blue with some small amount of green patina. When these colors have developed (20 to 30 minutes) I mist/sponge a burgundy pigment patina. This replicates the iron oxides found in the earth that would normally react to the buried metal. The need for sealing depends on the end use of the project.

The actual combinations of metals and patinas are limited only by your imagination. Other techniques for achieving color on metals is to use dyes. These are water based and very simple to use. They are developed to work on metals, are UV stable, and resistant to solvents. With these in hand you can offer your clients a virtually unlimited range of colors over any metal, metal coating, patinaed, or painted surface.

For example, a fabricator was doing a very ornate gate with a "coral reef" theme. For the grasses, the client wanted a verdigris look. That was the easy part. Then the customer requested that the tropical fish have the delicate, translucent tropical colors natural to them, which meant LOTS of colors. This was done by using the dyes in a very diluted form. Applied directly on the metals the dyes give a delicate gloss look. He was also able to blend any additional colors needed from the basic ten colors. In addition, he added more detail to the verdigris sea grasses by using different dye colors over the patina surface. The effect of the dyes over a patinaed surface is that they assume the matte characteristic of the patina. When the project was finished the gate gave the appearance of a very exotic and beautiful coral reef.

Another fabricator was presented with a problem after he fabricated a gate with a porpoise silhouette featuring verdigris waves supporting the porpoise. The problem was that after the client saw the gate installed, he decided the waves were too green. The client had a deeper shade in mind, so the fabricator requested a sample of this color. The fabricator was then able to wash on the dyes over the patinaed areas at the job site. The client was thrilled, and so was the fabricator!

One of the things you want to keep in mind any time you are creating an exotic finish is that each one is unique. Most of these are a method of accelerating the natural aging process of various metals, and in nature there are always variables and surprises. Allow these things to happen. Often the surprises end up being a "new technique" for a really interesting finish. Allow your imagination to be your limiting factor, and give yourself time.



These photos show the application of a patina finish for a driveway gate in Rancho Sante Fe, Calif. After the copper coating is applied, the patina is then carefully put on. The bottom view shows the gate with a full green patina.

In memory of Nancy Hollerbach. Reprinted from the Sep/Oct 1995 edition of Ornamental & Miscellaneous Metal Fabricator.