We woodworkers (especially when it comes to finishing) are creatures of habit; we use the finishes we use because they are the finishes that we have always used. But, from time to time it's good to step back and examine old "truths" just to see if they really are true….

Paint on A Clear Exterior Finish

The use of marine varnish to finish exterior elements in non-marine applications is one of those "truths" that has long needed to be revisited. That is the purpose of this article.

Several years ago, when I began participating in the WOOD Magazine *Finishing & Refinishing Forum,* we regularly saw questions from homeowners and others asking for advice on the best way to finish exterior doors, especially those exposed to the weather and subject to high UV. The options then were Helmsman Spar Urethane (and its polyurethane look-alike competitors), expensive marine varnish, and exterior paint. Over the years little has changed except that, thankfully, more and more woodworkers today understand just how poorly any finish that contains urethane resin will perform when exposed to UV. Even with only partial exposure to direct sunlight polyurethane will fail quickly, often peeling like a bad sunburn before the end of even a single season.

Marine varnish, then as now, was the recommendation of choice offered by a number of contributors. There is no arguing that quality marine varnishes will outperform polyurethane "spar varnishes" if UV resistance is the only objective. But good marine varnish is expensive; and, in reality it offers no reprieve from regular, on-going maintenance. You must still tend to the finish every year in full-sun environments; you must inspect, sand damaged areas, and recoat. Further, even those who regularly recommend marine varnish products will tell you that a minimum of 5 or 6 coats is required to obtain the full benefit of these finishes. So, not only are you applying two to three times more varnish; you are applying a product that costs two to three times more, and your maintenance schedule is unchanged.

Beyond that, it is important to understand that marine varnish is a "long-oil" varnish; varnish that is softer and much less resistant to moisture in the form of water-vapor than regular or "short-oil" varnish. Moisture movement into and out of the wood with seasonal changes in relative humidity is every bit of destructive to joinery as UV is to wood. These quality marine varnishes are excellent finishes in their intended environment. If I owned a wooden boat, I would use nothing else. But we are not talking about maintaining a boat; our objective is to apply a durable finish to a front door and to use a finish that will offer maximum protection along with minimum maintenance.

Quality oil-based exterior paint, sans the pigment, is ideally suited to this application. Exterior oil-based paint, after all, is little more than exterior oil-based varnish with a lot of pigment added. Remove the pigment and you have an exceptionally durable exterior varnish with additives that benefit the finish on your front door. These additives, intended to discourage insects such as wasps and wood boring bees, and prevent the growth of mold and mildew, would be useless in a marine environment; but we aren't talking about a marine environment. We are talking about your front door.

With this as a background permit me to introduce you to my friend Jim Kull. Jim was the owner of a successful refinishing shop in Southern California prior to his retirement and move to Texas. His retirement gave him a bit more time to experiment, so he conducted and posted the results of the following *test* on the WOOD Magazine *Finishing & Refinishing Forum* where he served as the host. When Jim decided to step down from his host duties, he was instrumental in my becoming host of that forum. Here, then, is Jim Kull's original post edited slightly for clarity:

"In a recent post my friend, Steve (Mickley), made reference to my tests of doggie sprinkling on exterior finishes. I figure after almost a year of testing it is time to post some interesting discoveries. As a preface, allow me to set the stage. Almost daily there is a posting about clear, exterior finishes for doors, chairs, signs, and such. Responses run the gamut from diehard marine finishes to apply a coat of primer and then paint. Each of these has a bit of a problem. Marine finishes are not always the easiest to find, and it grieves me to think of a lovely oak, teak, mahogany, fir, redwood, or similar nice wood door painted in mauve goop.

Bob (from Florida) inspired me with his continuing and accurate statements about the failings of a clear coat and the advantages of a good quality exterior paint. I decided after

lots of reflection that he really was right but there was always the picture of mauve in my mind. So, how could one take advantage of his advice and yet capitalize on the beauty of a nice wood? I began to reflect on the characteristics of paint. Now comes the boredom...

There were several things I knew about paint:

- Exterior paints contain a mildewcide and a fungicide that a (marine) varnish does not.
- The best quality paints will contain a UV (inhibitor) and trans-oxide pigments in very high percentages.
- Almost all paint is custom mixed by the store. The retailer maintains a large supply of base products that are used to achieve the desired color.

There are generally four base products and the specific one for your paint is determined by your color choice. These base products are either named or numbered. They are named pastel, deep, tint and neutral. If numbered it is cleverly 1, 2, 3 and 4 with the exception of Olympic who numbers 1, 2, 3 and 5. Olympic is unaware that "4" comes before "5". Pastel and/or 1 is virtually a pure white and used for the lightest of colors. The others are slightly color altered from white and more translucent than pastel. These are used for succeeding deeper colors. All of this comes to neutral, 4 and/or 5. These are clear and used for (mixing) the darkest colors. In the can they are somewhat opaque but dry more or less clear.

Now comes the testing. I bought 4 oak exterior doors. Each door was given one coat of the same MinWax Stain. On 3 of the doors, I applied 2 coats of "base" to the 6 sides of each door (3 coats on the top and bottom edges). Each of these three doors had a different type of exterior neutral, 4 or 5-base. The fourth door was finished with a consumer "spar" varnish from my local friendly paint/hardware store. The bases for the 3 painted doors were an exterior semi-gloss acrylic, an exterior semi-gloss oil-based polyurethane floor paint, and a semi-gloss oil-based trim and siding paint.

The doors were set up, slightly inclined, in mostly direct sunlight under a pecan tree in the backyard. (My wife just loved that one.) Daily, the sprinklers managed to hit the doors. The birds in the pecan tree used the doors for target practice. And, yes, the dogs did anoint the doors on a regular basis. My blonde Cocker, Zazu, was particularly enamored with the doors. Over the course of the test the doors experienced lots of Texas sunlight, rain, and snow. The temperature went from below freezing to over 100. The advantage to the inclined position of the doors was the snow, ice, water from the sprinklers and the rain

tended to collect in the raised panel areas. I feel these doors were subjected to far more severe environmental conditions than would be expected from normal use.

The results were interesting. The "spar" varnish (initially) looked fabulous; but, after about 2 weeks it began to develop small cracks. In rapid order the door began to turn black, started to mold and the smell was enough to knock a buzzard off of a manure wagon. The water-based acrylic is milky in the can like a water-based poly. It dried to a more or less water clear surface but was a bit cloudy. It tended to wash out the stain a bit. Over time it became cloudier and ultimately become almost white. But it remained solid and protected the wood. The oil-based bases are also a bit opaque in the can but dried to a clear finish that is almost identical to a spar varnish - they added an amber tone to the doors. Both the oil-based poly floor paint and the oil-based trim and siding paint remained "clear" over the entire test period.

The testing came to an end with a bit of encouragement. My wife said something clever like. ”Get those damned doors out of the backyard!" She does not understand science. The floor poly had some minor checking and a thinned coat of the same base over the surface made that disappear. The door with the oil-based trim and siding paint was perfect, other than it had lost a bit of the gloss.

So, I am with Bob - paint the door. My preference is the oil-based products. If you are predisposed to a water-based use an acrylic rather than latex.

One thing you will find when you go out shopping for your product is a lack of knowledge on the part of the salesperson. Not many of these folks are aware that their neutral or 4-base will dry clear. If you want to have some fun, spring it on them. They will suggest you are full of Donkey Dust. Ask them to shake a can and put some on a stir stick. Dry it and voila, it is clear.”

Posted on the WOOD Magazine Finishing & Refinishing Forum by Jim Kull

One final admonition; if you decide to try the paint solution you must understand that you are applying it like varnish, *not* like paint. Use a good natural fiber brush, keep your coats thin, (*emphasis added*; keep the coats thin! We recommend thinning with paint thinner to improve flow-out and leveling.) and brush the paint-base out into a thin, uniform film. If you apply the paint-base too heavily you will get a cloudy finish.

In the years since this article first appeared, oil-based paint (and paint base) has become increasingly more difficult to find. Clearly, marketing and profit-margin considerations trump issues of quality and durability. Also, in the realm of big-name retailers, in many areas of the country (even where oil-based finishes are still able to be sold) you will find no *oils* on the show room floor. Why? Simple! Water-borne finishes are easier and less expensive to produce therefore the profit margins are higher. (Forget finding oils in the "big-box" stores.) Nonetheless, I encourage you to find these products. I continue to use "clear-base" oils in exposed exterior, UV rich environments. I buy them in gallons, and I use Bloxygen to preserve the unused contents of the can. Urethane resin spar-varnish products are absolutely guaranteed to fail (and fail quickly) in a UV rich environment, again in spite of marketing hype…