



Finishing off finishes

This month Kurt Hertzog looks at refining and manipulating the finishes that have been applied to your work



In the world of woodturning and woodworking there are a few topics that have no end. The one that springs to mind is finishing. Even the world-famous experts on the science and art of wood finishing will admit that they are always learning and don't have all of the answers. Where does that leave us? I'd like to suggest that having a basic understanding of the families of finishes is a good building block.

In this series we've covered prep for finish, selection criteria for various finish types, the three major finish types, and some top tips for successful usage. The last aspect to look at is effective ways of controlling or manipulating the final look of the finish you have applied. Let's take a look at the core ways to do this.

Safety

As in all of my columns, I include the safety paragraph immediately after the opening paragraph. The number of woodturning and woodworking

acquaintances who have injured themselves in the shop is sad. They didn't heed the manufacturers' warnings about ventilation, eye protection, correct active filter elements on respirators, other PPE, and safe storage/disposal instructions. It is far too easy to take the macho approach and launch into using the product without understanding and following the safe use instructions. **DON'T DO IT.** You may find out years later that you have detrimental health impact because you took that cocky approach. More than one workshop and perhaps adjacent buildings are missing because of spontaneous combustion. Read the instructions, understand them, and follow them. Following the instructions and using the proper PPE isn't being wimpy, it is being smart.

Finish compatibility

Per the experts, you can put any finish over any finish. You can apply a finish

type, let it cure, and then apply a different finish type over the top. There are a couple of key points that need to be observed. Foremost, the applied finish needs to be completely cured prior to adding anything else. The base needs to be completely cured, clean and dull. Depending on the thinner type, you may need to apply a barrier coat to protect the lower finish. We've already covered shellac in a previous issue. One of the stellar properties of shellac is its compatibility with everything. Not only will it bond to just about anything but it provides a great barrier coat between finishes that don't particularly like each other. You may need to take advantage of this great characteristic of shellac. Please note this about any finish using lacquer thinner. You need to apply any over coats containing lacquer thinner in thin, quick-drying coats. This will prevent the lacquer thinner from dissolving through. Want to put lacquer over oil? Easily done. Want to put a poly

over a prior finish? Go ahead. Be aware that any differences in shrinkage rates may cause you issues. Whenever you are in doubt, it is best to use a test piece. Don't be afraid to test out the process with an intermediary such as shellac. You can easily perform that at the same time on your test piece. The value of test pieces is far overlooked. You can try out dyes or stains, check end grain absorption differences, evaluate finishes and gloss levels and more. Those cutoffs have some value other than in the burn bin.



Just plain oil was used on these items. Nothing special added after rubbing the oil into the wood



Wipe-on poly used per manufacturers instructions. After curing, wax is applied using a buffing wheel to manipulate the finish



Shellac with colouring. Airbrushing of patterns followed by epoxy overcoat inside and out after sanding, buffing and waxing

Gloss facts and control

I'm going to avoid using the term sheen in our discussion because it will create more confusion than it is worth. We'll stick with gloss as the term to denote shininess. Gloss is actually a technical measurement of light reflectance at a 60° angle using a 60° angle of incidence. Many finishes are available in various gloss choices. You'll often have choices ranging from matt, satin, semi-gloss, gloss, and high gloss. If you buy the matt, semi-gloss or gloss, you'll usually get what you expect right out of the container. Manufacturers use a flattening agent in their products to create lower-



A valuable addition to any finisher's kit. An assortment of steel wool from medium through superfine and pumice



For the true aficionado, pumice, rottenstone, felt pads and cork cushioning blocks

gloss versions from their higher-gloss formulations. The beauty of high-gloss

finishes is that you can reduce the gloss through a variety of methods.

Matting back a gloss finish

If you have a gloss finish and wish to reduce it, you can effectively matt it somewhat through abrasion. There are many different products that will work well from automotive grade sanding abrasives to steel wool. Obviously all of these products need to be very fine. The finish needs to be fully cured. Depending on the finish product itself, this can take from overnight to weeks. The high-end finishers – picture baby grand pianos – wait well over a month before they begin to work on a finish. In their case, it is usually to rub out and polish the finish. Point being that if the finish hasn't completely cured, you're liable to gum up your abrasive and just ruin things. The old saying among the craft fair folks is round, brown, and shiny sells might hold true. Matting back is a one-way trip. Once you've started, you are committed. The only solution to the problem of having

gone too far is to refinish. When I'm working with automotive abrasives, I use them wet with a small amount of water and liquid dish soap. Be cautious of getting things too wet. Small circular motions seem to work best and clean between grits. I usually start at 1000 in a hidden area. Coarse scratches scatter the reflectance and lower the gloss and sheen. Fine scratches will increase the gloss and sheen. Always be cautious of sanding near an edge. It is very easy to sand right through a corner or sharp edge. When using steel wool for this purpose, I only use 0000 steel wool and I use it dry. Use the same small circular motions. If you get very fine white dry powder in the wool, you are doing things right. ScotchBrite, Abralon, Micromesh and similar abrasives work well. Start midrange as needed. If you use pumice or rottenstone, pumice grade F will usually get you there.



Using 0000 steel wool dry with soft circular motions takes little effort take any high gloss back as desired to any desired level down to matt

Taking the gloss to extremes

Once you have a gloss finish, what else is there to do? A simple gloss may not be enough for you. You can take the gloss to extremes. Once you've gotten there, you can move into the waxes. There are several ways to take your gloss finish to the next level.



Just some of the available buffing compounds and waxes with abrasives from the woodworking and automotive trade

Products with abrasives

There are many waxes, polishes and buffing materials that contain abrasives. Nearly all of these products will tell you they contain them, although telling you 'contains fine abrasives' or 'super-fine abrasives' really doesn't tell you much. Although giving you a number may not mean much either. The purpose of the abrasives isn't to level the finish you've put on. You should have done that with your sanding process. The micro-abrasives added to the waxes, rubbing compounds, polishes, and buffing materials are there to help create the shine. A high gloss is defined as a finer and finer scratch pattern until it becomes optically imperceptible. That's what the abrasives are there for. Just be aware that getting heavy handed can hurt you.

Waxing

The addition of wax can further enhance the looks of your finish. Wax alone can be a finish but more often it is a top coat over something else. Richard Raffan uses a beeswax as a finish for his salad bowls. This lets an ageing and use patina to develop yet allows the owner to rejuvenate the finish as needed. My use of wax is mainly for fingerprint control. Any high-gloss finish will show fingerprints from handling in a bright light condition. I'm not certain how it works but the addition of the Renaissance wax, a microcrystalline wax of which there are many brand alternative options available, helps minimise the visibility of the prints. The application couldn't be simpler. Simply wipe on, rubbing in slightly and then removing any excess. Done. There are a host of waxes available from all of the major woodturning finish suppliers. Pick your choice based on their claims or your experience. Another source of extremely high quality waxes is the automotive industry. These range from liquid though hard paste. Most of these will provide great protection from extremes in temperature, moisture, and to some degree UV. If they are good enough to protect a car finish from the environment, they will do well to protect your turning in the sheltered environment it inhabits. Wax can be applied over the finish coat once it is fully cured, after rubbing out, or after buffing. The wax will work well over any of those conditions. Don't forget that the wax application can be buffed out as well.



A wax with fine abrasive compound mix being used to refine a finished surface



Wiping on a thin layer of microcrystalline wax and then the result once buffed off



Rubbing out

Rubbing out a finish hails back to the days of everything being hand done. Once the finish had cured, it was rubbed out with a very fine abrasive and then progressively finer abrasives until the desired gloss and

sheen was obtained. It served to remove any optical blemishes or flaws that might be evident in the finish. It was and is a very labour-intensive process, usually done on flat surfaces where any flaws in

the finish would be noticeable. On higher-end pieces, it can be done on turnings as well. Rubbing out usually uses a lubricant on the abrasive with the choice ranging from water to wax.

Buffing

Technically there is a difference between rubbing out and using a buffing but in today's turning world, they seem to blend together. Buffing wheels can be charged with abrasives that are in the rubbing out ranges. This allows for far more rapid completion of the task. There still can be rubbing out followed by buffing where buffing is putting the final high gloss on the piece. More often, the finish is applied and then buffed to completion. The use of tripoli, white diamond, and then often a hard carnauba wax is often the course of buffing. One of the

more popular buffing systems is available from the Beall Tool Company. It offers an assortment of buffing wheels, buffs, and charging compounds. Care is always in order with any buffing wheel. The compound is an abrasive and the speed, density, stitching and presentation of the piece can easily go from enhancement to damage. Beyond that can be a very soft flannel wheel with nothing applied or perhaps the finest of jeweller's rouge. Far more information on buffing is available in *Woodturning 276*.



There are many sizes, shapes and grades of buffing wheel available alongside myriad forms of abrasive and finishing compounds to apply to the wheels. For manipulating or applying finishes, loose-fold wheels are most commonly used



It is best to dress, also known as conditioning, the wheels with a wire brush or special toothed comb prior to loading or charging the wheel with a finish or abrasive compound. Charging the wheel is best done lightly and as needed. Always err on applying too little rather than too much abrasive or finishing compound on a wheel



Once the wheels are prepared, load with either a wax finish or an abrasive compound. Each wheel should have a designated use for a certain task, you should not mix finishes and abrasives on any given wheel. It might be prudent to label what each buffing wheel is loaded with and used for



If you want, manipulate an applied finish on the work with a fine abrasive compound and, if desired, follow this by using a wheel or buffing pad loaded with a wax compound or finish to achieve a glossy effect



Additional learning and reading

In this day and age of online knowledge, there is little that can't be researched via the internet. Please accept one word of caution when using online resources. Be certain the source is as expert as they profess to be. Just because they have a YouTube channel and followers doesn't make them an expert. While there are many resources that you can use, I tend

to keep going back to the folks I know are expert. I've met them and been fortunate enough to have had class time with each one of them. I have faith in their advice. Even more impressive than their sharing of knowledge is their willingness to tell you when they don't know. The resources that I use most are writings and videos by Michael Dresdner, Bob Flexner, Jeff

Jewitt, and Teri Masaschi, all recognised experts in the field of finishing wood. Their columns from various magazines are online, they have websites with materials, and the local library should have many of their hard copy publications and videos. There are certainly many others that you can learn from. I name these folks because of my personal experience with them.

Conclusions



It never hurts to have a test sample. Use it to evaluate the various finishes before betting the ranch. Notice the legend tag

Throughout this series, I've tried to make the point that there really isn't the perfect finish. Each has strengths and weaknesses that need to be balanced by the end user as you make your selection. There are finishes that last hundreds of years and there are some that literally wear off with a few handlings. You can have high gloss, low gloss, tough and protective, beautiful but perhaps fragile, or many other options. Make an informed choice based on your end goal. If I could leave the most important thought I have on finishing, it would be practice

finishing. Most of us didn't master any skill without practice.

Finishing is both a science and an art. You can go through the mechanics of finishing and not achieve all that is possible. Take some time to apply finish on practice pieces. Try some experimentation and perfect the rote skills to arrive at the best outcome. Practice controlling the sheen to the level you wish. The time spent improving your skills on practice pieces will save a lot of heartache if you do your practicing on your prize turning.



The latest work buffed to give that extra visual appeal

Interesting things to remember

- The first coat of water stains tend to dry, lighter subsequent coats darken.
- Water stains tend to raise the grain. Wet, dry, and sand before staining.
- Let water stains dry for 12 hours before applying additional coats.
- Seal end grain with shellac or sanding sealer prior to staining to prevent differential absorption.
- Oil dyes penetrate and dry very quickly. Mix with shellac to moderate.
- Mix pigments on paper for quick colour check.
- An undercoat of shellac helps make beeswax spread evenly.
- Varnish will work on any wood. Be certain to wait for full hardening before additional coats.
- No finish will completely halt the moisture movement to and from wood.
- Automotive polishes are superb over wood finishes as long as the item is decorative and not intended for food use.
- Gloss and sheen are technical terms and measurements that often get confused or used incorrectly as interchangeable.
- When sanding with any grit to level the finish, prep for polishing, or matte the gloss back, be careful not to wear the edges of work.
- Flattening agents added to finish dull the gloss (and the sheen) by scattering light randomly.
- Lubricants for wet sanding can be water, soapy water, mineral spirits, oils, or wax.
- Remember the keys to selection of a finish are: appearance; protection; durability; ease of application; reversibility; safety; and cost.
- The most brittle finishes rub out the best. Lacquer at the brittle end and spar varnish at the flexible end. ●