



tools of the trade

smooth operators

Sanding Without Sandpaper

Sometimes sandpaper just won't cut it. Turn to these sandpaper alternatives to get the job done on highly detailed and curved surfaces.

Sanding sponges can conform to just about any shape for final smoothing.



Wrap a piece of sandpaper around a wood or cork block and you're ready to tackle most sanding jobs. But there are times when a rigid sanding block isn't the best tool for the job — like curved surfaces, narrow spaces, and delicate molding profiles. For these, I turn to a couple of other sanding tools — foam sanding sponges and sanding blocks.

While they won't replace your trusty wood sanding block, you may find yourself reaching for them more often for the great results you can't get with anything else. Although you can find several of these products at a hardware store or home center, we've listed several sources on page 51.

SANDING SPONGES. If you've ever tried to sand moldings with sandpaper, you know that it can be nearly impossible to hold crisp details and smooth curves. The abrasive on sandpaper can also crease and peel off the backing and gouge the workpiece. Instead, I like to use thin foam sanding sponges. They have a resin-covered, aluminum oxide abrasive bonded to a soft foam substrate. The soft foam and flexible resin lets you bend and fold them into almost any shape for sanding tight curves, as you can see in the photo at left.

FOAM SANDING BLOCKS. The sandpaper substitute that I use most often is a foam sanding block, you can see several types in the top left photo on the opposite page. About the size of a bar of soap, they are comfortable to hold and last a surprisingly long time. At the core, they have medium-density foam covered on four sides by a layer of resin. Like sanding sponges sanding blocks use aluminum oxide as the abrasive. A final layer of resin holds the grit in place and helps prevent clogging.

What makes these blocks so handy is the stiff foam core. It's firm enough to hold its shape while sanding flat surfaces without rounding

over edges or creating hollows. Yet it's soft enough to conform to gentle curves and rounded surfaces, as shown in the left photo below. This softness also prevents the block from clogging with sanding dust.

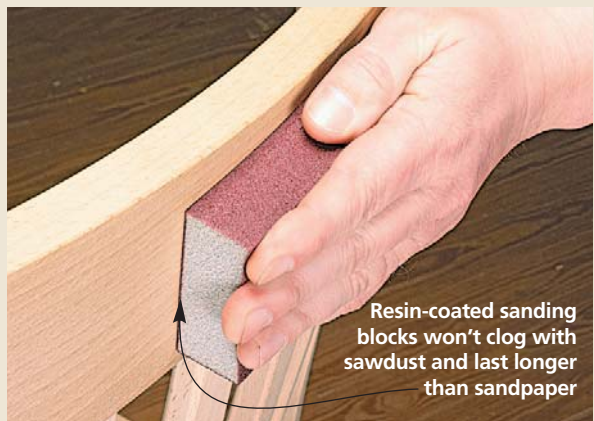
With grit on four sides, the blocks can fit into tight corners and sand narrow spaces, as you can see in the right photo below. You can even get foam sanding blocks that have a beveled edge. This thin edge makes it easy to smooth up the hard-to-reach places and keep details crisp.

The blocks come in a range of grits from coarse (36 and 60 grit) that is great for stripping off paint to fine (180 grit) for final smoothing.



▲ When foam sanding blocks or sponges get loaded up with sanding dust, you can rinse them out in water and reuse them when they are dry.

Foam sanding blocks and sponges work great on bare wood. But for buffing a finish, I like to use something a little different. You can read about that in the box below. **W**



▲ Foam sanding blocks are soft enough to conform to gentle curves for smooth sanding with no flat spots.



▲ Another feature of foam sanding blocks is that there's abrasive on four sides for getting into tight places.

Worth A Look: Abrasive Pads

For buffing between coats of an oil finish, I usually use #0000 steel wool. But when you're using water-based finishes, steel wool leaves behind little bits that cause rust stains.

To get around this, I've started using abrasive pads. The pads, similar to kitchen scouring pads, are made of plastic fibers and aluminum oxide and glued together.

The pads are color-coded by grit size. Blue-gray is the coarsest (about the same as 100-grit sandpaper), followed by maroon (180 grit), gray (280 grit), and white (which has no abrasive in it).

I've found the white pads are great for the final rubbing out of a finish to a high gloss, as in the photo at left. The plastic strands are abrasive enough to polish the surface. I also use them to apply water-based stains because the pad won't wick away the water.





the simple secrets of a

High-Gloss Finish

A hand-rubbed, high-gloss finish can make a project look like a million bucks. And best of all, it's easy if you know the right techniques.

There's nothing quite like the look of a polished, high-gloss finish on the right project. It brings out all the depth and beauty of the wood and lets it shine. It's like you're looking at the wood through a sheet of glass.

I'll admit right off the bat that a rubbed-out, high-gloss finish isn't one that I use often. But on a special project — a tabletop, a small box, maybe a mirror frame it can make the ordinary, extraordinary.

Sure, a high-gloss finish is going to take more time and effort than most other finishes. But there's really nothing difficult or tricky about the process. The key is simply to relax, take your time, and follow the steps. The results are almost guaranteed.

A QUICK LOOK. The mirror-like sheen you're shooting for is the result of a multi-step process. First, you build up a thick film of finish by

brushing on multiple coats — as many as eight. This thick layer of finish is then sanded until it's perfectly flat and smooth, but without any gloss. Finally, you bring the gloss back by polishing the flattened surface with finer and finer abrasive compounds. It's really just about as simple as it sounds.

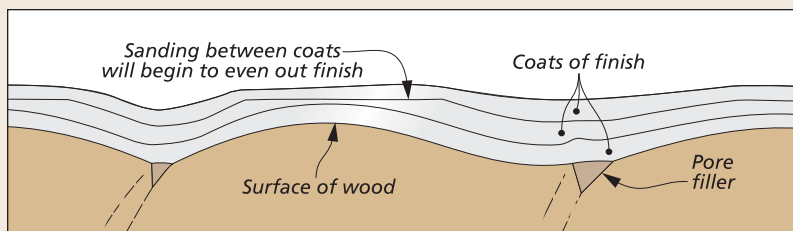
GETTING STARTED. The finishing process starts about the same as any other. But here, I'm maybe just a little pickier with my surface preparation. You want to keep in mind that the smoother and flatter the surface you start with, the easier it will be to create a perfectly flat film to polish. So I sand the surface to 220-grit and then I'm careful to soften all the sharp edges and corners. This will keep you from sanding or rubbing through the finish later on.

FIRST STEPS. Once you're satisfied with the surface, there are a couple

things you might need to do before you start applying finish. Naturally, if you're going to stain the workpiece, now is the time to do it. Any stain that's compatible with the finish you plan to use will be fine.

And if you're working with an open-pored wood like mahogany or walnut, you may want to take the extra step of applying a paste-type pore filler. This simply allows you to build up a smooth, flat film for polishing with fewer coats of finish. You'll find the details in the box on the following page.

CHOOSE A FINISH. Now before you can start building a finish, you have a decision to make, which type? The two traditional finishes used to create a high gloss look are varnish and lacquer. You can get great results with either, but there are some significant differences that you'll want to know about.



Multiple Coats. As you apply coat after coat, sanding between each, you build a thick film of finish that gradually lies flatter and flatter on the surface.

If you read through the box at right, you'll have a good idea of the differences between them. But I want to make special mention of one very important difference.

ONE LAYER. When you apply lacquer, each successive coat "melts" into the one before it. So in the end, you basically have one thick coat of lacquer on which to sand and polish.

MANY COATS. With a varnish, each coat simply lies on top of the previous coat. So sanding between coats is a must to get good adhesion. But a problem with varnish can lie in the final sanding and rubbing. If you rub through the final coat to the one beneath, you'll expose a faint joint line (called a witness line). The solution is to apply a flat film that won't require too much sanding to flatten. And with varnish, this isn't difficult.

I've used both finishes and had great results. In the end, your choice comes down to which type you feel more comfortable with. I think lacquer gets the job done a little quicker, but varnish probably takes a little less work. One last thing. If you choose varnish, buy a good-quality, interior type with a high resin con-

tent. The Behlen brand shown at right is my first choice (see sources).

A THICK FILM. Building the finish is a pretty straightforward process. Your goal is a film thick enough to sand flat and then polish without fear of rubbing through.

At this point, I just settle into a routine. I carefully brush on a coat of finish, let it dry completely, sand a bit, and apply the next coat. A good-quality brush and good technique will result in a flatter finish and save you work later.

Even with lacquer, I like to sand lightly between coats with 320-grit sandpaper. This flattens the surface a bit after each coat allowing you to judge your progress toward a thick, relatively flat film.

As each coat is applied, the finish will lie smoother and flatter, as shown in the drawing above. But even after the final coat is applied, the finish won't lie perfectly flat.

The trick is to judge when you've built up enough finish. Four or five coats of varnish will usually do the job. With lacquer, you might need seven or eight. After curing for several days, the finish is ready to rub.

Two Good Choices



Before you choose whether to go with lacquer or varnish, it helps to know the pros and cons of each.

I like the fast-drying property of lacquer. This lets you apply as many as three coats in a day. But since it tacks up and dries quickly, it can be tricky to apply without leaving brush marks. And it builds slowly, so you'll have to apply more coats.

On the other hand, a slower-drying varnish flows out and leaves a smoother surface. It builds faster, so fewer coats are necessary. But the slow drying time means one coat a day is the best you can do. And there's more time for dust to settle in the finish.

Lacquer

Pros:

- Dries within a few hours allowing several coats a day.
- Multiple coats create one thick film.

Cons:

- Can be difficult to apply without brush marks.
- Thin coats build slowly.

Varnish

Pros:

- Brushes easily and flows out smoothly.
- Requires fewer coats to build a thick film.

Cons:

- Dries slowly, only one coat a day is possible.
- Dust can be a problem.

Shop Tip: Pore Filler

The mahogany tabletop you see in the large photo at left has thousands of open pores on its surface. This makes applying a nice, flat layer of finish on which to polish a challenge. The wet finish settles into the pores and leaves a "dimpled" look on the surface. The simple answer is to level the surface with a paste-type pore filler before you start applying the finish.

A pore filler comes as a thick paste. The pre-tinted variety reminds me a little bit of a gel stain, only thicker and stiffer. You'll find that it's pretty

easy to use, but there are a couple of tricks you need to know.

Pore filler dries fast, so I work small areas. Wipe or brush the filler on, forcing it into the pores (photo at right). Let it sit for only a couple minutes before removing the excess. First, wipe across the grain. Finish up by wiping with the grain. Try to work fast before the filler becomes too stiff. You don't want the filler to "muddy" the surface. I give it a good 24 hours to dry and then apply a thin coat of shellac to seal in the filler.



▲ It looks like a messy job, but you'll find that applying pore filler can really be a big help with some woods. You'll end up with a much flatter finish in less time and save yourself some work.

sand and POLISH

At this point, you've built up a thick, shiny film, but it's not perfect. You'll see brush and lap marks and dust specks. So after allowing the finish to cure for several days, the next step is to sand the film until it's perfectly flat. And when it's flat as glass, you can polish it to a high sheen.

WET SANDING

This sanding process is a little different. Here, you'll use very fine-grit "wet-or-dry" sandpaper found at paint or auto body stores. The sandpaper is wrapped around a padded sanding block and the surface kept well lubricated with mineral spirits (paint thinner) while you sand. The mineral spirits float away the sanding dust to keep the sandpaper clean.

I like to start with 800-grit sandpaper. Just pour a liberal amount of thinner on the surface and start sanding with a circular motion. This "random" motion will get you to a perfectly flat surface quicker.

As you work, the mineral spirits and the sanding dust will mix to create a light slurry (photo above). This shows that you're making progress. It's a messy process, but even so, you want to keep the surface good and wet. On the plus side, you'll be surprised at how fast the fine sandpaper levels the irregular surface.

▶ The main tools for wet sanding to a smooth, flat surface are shown at left. Used with a sanding block, they'll get the job done surprisingly fast.



▲ Once you've laid down a thick film of finish, it only takes a small amount of elbow grease to level it. The three ingredients you'll need are wet-or-dry sandpaper, a padded sanding block, and plenty of mineral spirits.

Sanding near the edges gets my special attention. It's often where the finish is the "roughest" and needs the most work. But you want to take care not to sand through the finish to bare wood. I try to use a light touch and not "drag" the sanding block too far over the edge.

CHECK YOUR PROGRESS. I use both sight and feel to check my progress. When you run your fingers lightly across the surface, you'll feel any unevenness. Then after sanding for a time, I'll wipe the surface clean and look closely for shiny areas. Spots of shiny finish mean your surface isn't quite flat. You want a surface that's completely dull.

TIME TO SWITCH. When I think the surface is 99% flat, I switch to 1200-grit and finally 1500-grit sandpaper and repeat the process. These two steps create finer and finer scratches and reduce the amount of polishing you'll need to do.

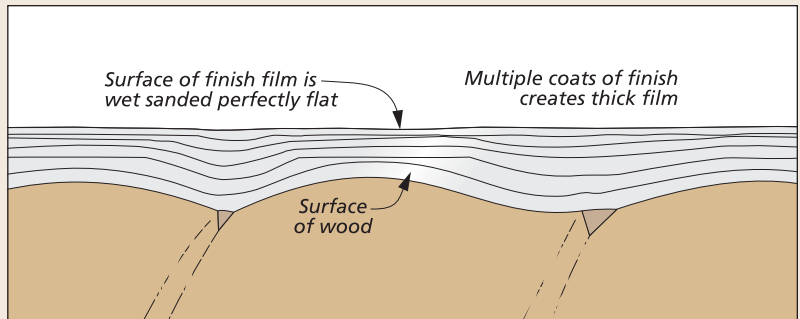
By now, most of the leveling work is done, so you can get through these last stages pretty quickly. But you don't want to leave any deep scratches that will take a lot of time to polish out later.

It can be hard to judge when to quit sanding and move on to the polishing. When you think you're close, clean the surface with a soft cloth and take a look. It may sound strange, but what you're shooting for at this point is a perfectly flat surface with a consistent dull sheen and no noticeable scratches.

BRING UP THE GLOSS

So now you've taken the film of finish from uneven and shiny down to dead flat but completely dull. But you can bring it back to a high sheen in two quick polishing steps.

A LITTLE DIFFERENT. This polishing or rubbing process is slightly different from the wet sanding you just



Dead Flat. The drawing above shows the goal of the wet sanding process. The built-up finish is now perfectly flat and ready to polish to a high gloss.

completed. Here, you'll use two traditional polishing abrasives — pumice stone and rottenstone — to remove the fine scratches left by the wet sanding. These abrasives (photo below) come in powder form and also need a lubricant to do their job. But instead of mineral spirits, the lubricant you'll use is a rubbing oil, like paraffin or mineral oil. The trick is that as you rub the surface, the abrasive powder and the oil combine to form a paste-like polish. (See page 49 for sources of these finishing supplies).

PUMICE STONE. The polishing begins with pumice stone as the abrasive. This comes in different grades or particle sizes (1F through 4F). But since the surface has already been

sanded with 1500-grit sandpaper, you can start polishing with the finest grade — 4F pumice stone.

First, pour out a small puddle of lubricating oil on the surface and then sprinkle a small amount of the white pumice powder over it.

Now I pick up a felt block to start rubbing (photo at right). A soft cotton cloth will do the job, but the felt block is easier to hold onto and gives you a large, flat polishing surface.

The key to the polishing is to take your time and be sure to cover the surface thoroughly. The direction of the rubbing doesn't matter, and a moderate amount of pressure is all that's needed. If the paste starts to get too thick and hard to rub out, simply add more oil and a little more pumice.

The polish works pretty fast. What you're looking for at this stage is soft, semi-gloss sheen. When you think you're there, clean an area with a soft cloth to take a look.

ROTTENSTONE. Once the pumice stone has done its job, you're nearing the end. Traditionally, the final step is to bring the surface to a high gloss by polishing with rottenstone. This is an even finer abrasive. (You can check out the box below for one additional step.)



▲ Under the messy paste formed by the oil and the brown rottenstone powder, the finish is taking on its final mirror-like gloss. I put in a little extra time at this stage.



▲ The two traditional rubbing compounds you'll need to achieve a high gloss finish are 4F pumice stone and rottenstone.

This final polishing step goes exactly like the one you just completed. The rubbing oil and brown rottenstone powder are spread over the surface and "rubbed" into a polishing paste. But before starting, wipe the surface clean of all traces of the pumice stone. And then switch to a clean felt block.

Again, you can rub in any direction, just concentrate on polishing every bit of the surface. And since this is the last step, I try to relax and not rush through it.

It's easy to tell when you've reached the mark. Pick up a fresh cloth and wipe the surface clear for a close inspection. If your gaze is rewarded with a sharp reflection, you're there — you've mastered a hand-rubbed, high-gloss finish. **W**

Shop Tips: A Brighter Shine

If you want to bring out just a little more gloss on your project, there's an easy way to do it. Stop by an auto body supply store and pick up a bottle of the swirl remover shown at far right. This easy-to-use product is a very fine, synthetic buffing compound used to give an auto paint job that "new car" shine.

You use the swirl remover similar to a paste wax (photo at right). Squirt some on a small area of the surface and rub with a soft cloth. Just polish until the swirl remover starts to dry out. When you clean the surface, you'll find an even brighter shine.



More Shine. In just a few minutes, you can bring up an even higher gloss. The automotive polish at right and a soft cloth are all you need.

