

1995

Wood Finishing & Refinishing: Getting Ready

Leona K. Hawks
Utah State University

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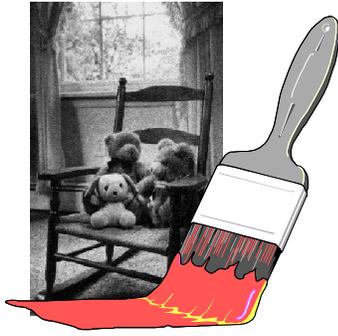
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Recommended Citation

Hawks, Leona K., "Wood Finishing & Refinishing: Getting Ready" (1995). *All Archived Publications*. Paper 526.
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Fact Sheet #1

GETTING READY**Wood Finishing
& Refinishing**

Dr. Leona K. Hawks
Home Furnishings and Housing Specialist

1995

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You can stretch your furniture dollars by using energy, time, and skills of the “eye” and the hand in refinishing furniture. By refinishing furniture, you not only can furnish your home inexpensively but also with real distinction and beauty.

New materials and methods of finishing make it possible to restore an old piece to enhance its usefulness. You may apply finishes that resist moisture, alkalies, acids, alcohol, heat, or abrasion. These finishes are appropriate for today’s way of living, providing maximum wear with a minimum of care, and will never have to be removed.

First, look at the pieces you have. Could you enhance their beauty and usefulness by refinishing them or adapting them to serve a new purpose—a “second life”?

Secondhand pieces of simple design and durable construction, if suitable for your purpose, may be bought for a reasonable price. Explore secondhand stores, auctions, swap shops, sales from model homes, and movers’ storage warehouses. Read want ads in local papers, or you may enjoy shopping in antique shops.

Unfinished furniture with beauty in grain and wood color is another possibility.

Furniture refinishing/finishing is not difficult, even for a beginner. However, time, patience, and care are essential. Your first project can be completely successful. Just follow each step carefully to avoid difficulties that would take much time and effort to correct later.

There are many ways to refinish/finish furniture. Some techniques are best suited for professional use. The methods included in this learn-at-home course are appropriate for beginners as well as for those who have had some experience.

It is rewarding to see the beauty of natural wood grain and color emerge from beneath layers of old finish or from unfinished beautiful wood.

You do not need to be an expert in identifying antiques or woods to select furniture for restoration. You need only to recognize beauty in design and wood. You may glean much information by studying restored pieces in museums and shops and by observing woods and finishing used in new or unfinished furniture stores.

A piece of furniture does not have to be a collector’s item to give you pleasure and to have value. If the wood has natural beauty, the design is pleasing to you, and the piece can be adapted to your purpose, wood refinishing/finishing may be well worth your while.

Selecting that “just right” piece of wood furniture to finish or refinish can be a satisfying adventure.

Keeping in mind how you want a piece to perform for you, examine the piece carefully and ask yourself these questions:

- Can it be adapted for my purposes, and where will I place it in my home? Will it fit the space I have?
- Is it well-designed with pleasing lines and proportions?
- Is it constructed from one or several woods? Scrape several small areas on an underside with your fingernail to determine the type of wood. If unfinished, rub with a moistened finger to see if the finished wood will have a rich color. Remember that the original color may be enhanced or changed with stain.
- Are any parts missing? Would they be expensive to replace? Can I replace them at home with available tools and materials?
- Is the construction sturdy? Are there any loose joints?
- If the piece has poor construction or design features, can it be remodeled to my advantage?
- Will the refinished/unfinished piece cost less than a new piece of furniture that already has a finish? If not, it may be wiser to buy a new piece, unless it is valuable as an antique.

Some aspects of quality furniture to consider are the design, the wood, and type of construction.

***The Design**

Of course you want the furniture to add to the attractiveness and atmosphere of your room. To do this it must be of good design and appropriate to the space where it is to be used. For continued satisfaction, the furniture must have good proportion, simplicity, grace, consist of good materials and have quality construction and workmanship.

Well-designed furniture is ageless and can be used in many settings. You will find today's furniture is especially versatile. For example, there are chests of drawers that are equally attractive and useful in the bedroom, living room or dining room. Several can be combined with shelf units to make a room divider or storage along a wall. Tables can be adjusted in size or combined with other tables to fit changing needs. Small chests can double for end tables and storage units.

You can expect the best quality for your furniture dollar if you choose wood furniture that has little or no decoration. If furniture has good line, good proportion and the wood has interesting and pleasing grain, fancy decoration is unnecessary. Decoration, if any, should be an inherent part of the overall design, not an added embellishment.

***The Wood**

Select woods with texture and color tones that blend with or accent other furnishings in your home and that will be easy to care for. Woods need not all be alike in a room. A pleasing effect is quite possible by the skillful combining of compatible woods.

Both hardwood from deciduous or leaf-bearing trees (teak, walnut, oak, maple, mahogany, cherry, birch, etc.) and softwood from coniferous or evergreen trees (pine, fir, redwood, cedar, poplar, etc.) are used for furniture. You will find quality furniture is usually made of hardwood, which is quite durable and has natural beauty of grain and texture. Softwoods are generally used for less expensive furniture. There are, however, varying grades

of each of the two types of wood, so quality and price of furniture depend somewhat on the grade of wood from which it is made, and also construction.

Whatever wood is your choice, sooner or later you will hear the terms, “solid” and “veneer.” The belief is quite common that furniture made from solid wood is superior to veneer, but this is not true. Neither one is wholly superior to the other, and furniture of low, medium and high quality can be made from either solid or veneered wood or combinations of both.

A veneered plywood is a wood sandwich of several layers. The center core of the sandwich may be solid lumber or one of the wood chip products. On each side of the core, thin sheets of strong hardboard are placed at cross grain. The top face or veneer is a very thin layer of hardwood especially selected for beauty of grain, color, and texture. Modern miracle adhesives and electronic presses make this durable type of wood furniture possible.

Advantages of solid wood

- Easily repaired or refinished
- Makes carved decoration possible
- Edges show no layered effect
- Surface does not loosen

Advantages of veneer

- Maximum strength in furniture
- Lightweight furniture construction
- Resistant to warping, checking and swelling
- Wood grain easily matched for striking effects
- Makes beautiful wood surfaces available at relatively low cost
- Ability to be shaped into simple or compound curves which makes beautiful lines possible

The Federal Trade Commission in 1963 established Trade Practice Rules for the Household Furniture Industry. This ruling prohibits false and misleading representation of wood and wood imitations. The Commission specifies four classes of labels for wood, and all furniture should be properly labeled:

Genuine—Exposed structural parts and flat surfaces (possibly veneer) must be of the wood named, such as “Genuine Walnut,” “Genuine Teak.”

Solid—Exposed portions of both frames and panels must be made of solid lumber—no veneers or plywood. Examples, “Solid Oak,” “Solid Cherry.”

Two or more woods combined—If more than one kind of wood is used, both must be named on the label. Thus, gumwood frame stained to match mahogany panels would be labeled “Mahogany with gumwood frame.”

Imitations—Printed or painted grain pattern on hardwood, metal, plastic and lumber should be labeled accordingly, such as “Imitation Oak Grain on Hardboard.” This includes photographic reproductions of wood grain on paper, glued to any surface.

If you see just a name as “Oak” or an abbreviation as “Wal” or “Mah” it is quite possible that an oak, walnut or mahogany stain has been used on gumwood or another less expensive wood.

*The Construction

It is fairly easy to examine most construction features of wooden furniture to determine quality and durability. However, no furniture can be judged by appearance alone. Be sure to check tags and labels and ask questions about any information on them you do not understand. Also request information on construction features you cannot see.

Frame—Test for sturdiness by placing your hand firmly on the top of the table or chest (be sure it is sitting on a level, smooth floor) and try to “rock” it back and forth. It should be sturdy enough to withstand this pressure. If it rocks or is not firm, low quality construction is indicated.

Unexposed Parts—Back panel, underneath and all unexposed parts need not be finished to the fine perfection as the exposed parts but quality is added if they are sanded smooth and finished to prevent swelling and shrinking.

Moving Parts—All moving parts should operate properly and with ease.

Drawers—Look for perfect fit and smooth operation. Test a drawer by pulling on only one side. It should glide easily both out and in. Drawers with center guides will operate without jamming and drawer stops will keep the drawer from being pulled all the way out unexpectedly. Dust panels between drawers are an indication of good quality furniture. The interior of some drawers is of molded plastic which usually has a smooth cleanable surface and is quite sturdy.

Doors—Look for a tight fit, good hinges to prevent sagging, and magnetic door catches for convenience.

Table Leaves—Look for “self contained” tables that have extensions to add table space or storage sections for leaves. Leaves should fit in the table snugly and be made of the same wood as the table top.

*Joinings

How the various sections of a piece of furniture are joined is very important to its durability and appearance. Joinings should be as nearly perfectly matched as possible, tight and smooth, reinforced, screwed rather than nailed and secured with high-quality glue. Of course the kind of glue used is almost impossible to determine, but water soluble glues are preferred over synthetic so the joinings can be taken apart for repair or refinishing. (See Figure 1, Joinings.)

The two most frequently used joints for right-angle joinings are the mortise and tenon, and the dowel joint. In the mortise and tenon, a mortise or socket is cut out, then the tenon or projection on the other piece of wood is fitted into the socket.

In the dowel joint, a wooden peg, the dowel, is fitted into borings in the wood to be joined. Often two pegs or double dowels are used. Glue secures both mortise and tenon and dowel joints.

The tongue and groove is a joint similar to mortise and tenon, with the tongue and groove extending the width of the joined boards. Glue is used to secure the joint.

Rabbeted and butted joints are sometimes used for inexpensive furniture. The rabbeted joint has a groove cut from the edge of one piece with the end of the other piece fitted into the cut out space. Glue and preferably screws but sometimes nails, or staples, hold the joint together. A butted joint is the least desirable and is simply two boards placed at right angles, glued and secured with screws, nails, or staples.

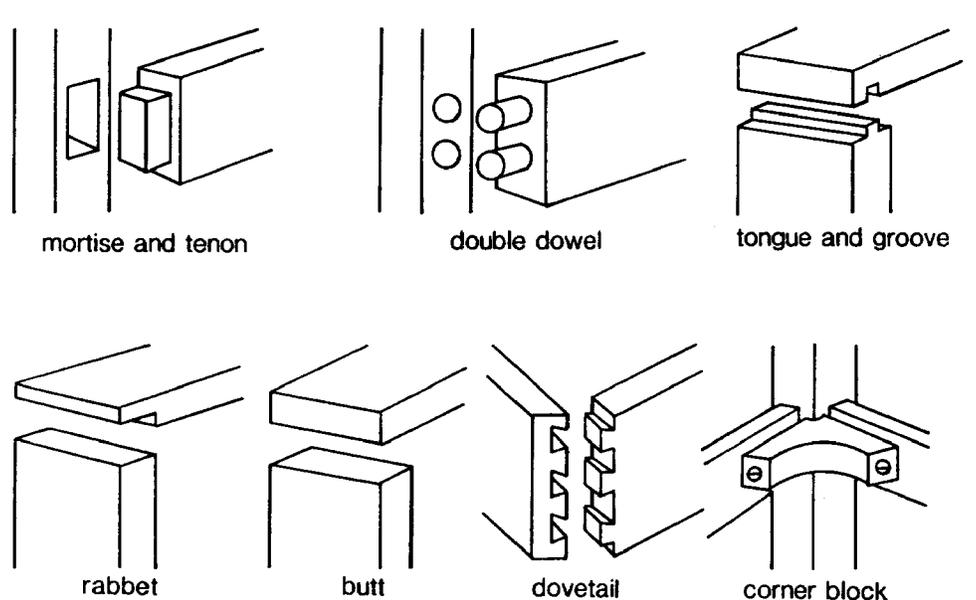


Figure 1. Joinings

The dovetail is almost standard construction in drawers of good quality furniture, but not in low cost furniture. Two pieces of wood are notched and joined together, just as you would join hands by interlocking your fingers. The joint is glued.

Corner blocks add strength where rigidity is important, as with chairs, tables and the joinings of posts to sides and backs of chests. They should be attached with screws.

***What's on the Market**

Now you know what features to look for in selecting good quality wood furniture, you're ready to learn about some of the wood refinishing products that are found on the market.

• Brushes

Nylon Brush—Used for oil-based paints, but also recommended for latex or water soluble paints. Nylon brushes should never be used with shellac, lacquer, contact cement, or paint remover.

Polyester Brush—Recommended for use with latex and oil-based paints, shellac, and varnish. The polyester brush is a good all around brush and will hold up quite well in paint remover.

Natural Bristle Brush—A natural bristle brush is a good choice when applying a clear finish to a wood surface. It is recommended for applying oil-based paints, varnishes, and other finishes. Never use a natural bristle brush with latex or water thinned paint because the bristles will absorb water and become limp.

• Solvents and Thinners

Paint Thinner (mineral spirits)—A solvent used to thin wood materials. Often can be used in place of naphtha and turpentine. Used to thin wood filler, oil stain, varnish, enamel, and oil paint.

Naphtha—A solvent used to thin wood refinishing materials. Often can be used in place of paint thinner and turpentine.

Turpentine—A solvent used to thin wood refinishing materials. Often can be used in place of naphtha and paint thinner. It is more expensive than naphtha and paint thinner. Used to thin oil paint, enamel, varnish, oil stain, and wood filler.

Denatured Alcohol—A solvent used to thin wood refinishing materials such as shellac.

Lacquer Thinner—A solvent used to thin wood refinishing materials with a lacquer base.

Water—A solvent used to thin and clean latex paints and clean up water base paint removers.

● **Paint Removers**

Liquid Paint Remover—A paint remover that is more effective in removing the old finish from carvings, grooves, and turnings such as legs and rungs. May need to be neutralized after use.

Gel or Paste Paint Removers—A paint remover that is effective in removing the old finish from large pieces with flat surfaces. Also used on vertical surfaces because the gel holds remover on wood surface.

● **Bleaches**

Bleaches are used to lighten wood or to remove stains. Several different types of materials are used to bleach wood. They are the two-part commercial bleaches, hydrogen peroxide, oxalic acid bleach and laundry bleach.

Two-part commercial bleaches—These are expensive and extremely strong and will do a more thorough job of lightening wood than any of the other bleaches.

Hydrogen Peroxide—This bleach is used in a 35% concentration. Used to lighten many of the darker woods.

Oxalic Acid Bleach—This is a good bleach for most woods and water and chemical stains.

Laundry Bleach—An inexpensive wood bleach and relatively weak. It is recommended to even wood tones. Usually used full strength.

Patching Materials

Putty Sticks—These are most commonly used for filling nail holes in prefinished work. Putty sticks are available in different colors and look like large wax crayons. Never hardens and maintains wax consistency.

Lacquer Sticks—A patching material that comes in a stick and has to be melted with a hot knife. The patching material then is pushed into the hole with a heated knife. The knife could be heated by several different methods: a propane torch, candle, or soldering iron. Requires some skill. Hardens when cool.

Plastic Wood—A patching material made from plastic and used to repair dents, cracks and holes. Easy to use. Dries hard.

Wood Dough—A patching material made from wood and used to repair dents, cracks, and holes in an unfinished surface. Can be pre-stained.

Wood Patch—A patching made of cellulosic putty that will absorb stain. Easy to use.

● Glues

Polyvinyl Acetate (PVA)—Familiar white glue; usually comes in a clear plastic squeeze bottle. Water soluble. Inexpensive and dries fast. Not resistant to heat.

Aliphatic Resin—Yellow glue similar to PVA glues. Comes in clear plastic squeeze bottles. Especially made for wood. Water soluble but will resist some moisture.

Plastic Resin—A powder glue that comes in cans. High strength and water resistant. Excellent for furniture and cabinet work where joints are close fitting. The best glue to use on oily woods like teak and rosewood.

Hot Melt Glue—Comes in cartridges and is used with a glue gun. Must be heated to remove. Excellent for quick repairs and sealing jobs. Good moisture resistance and quick set.

Contact Cement—Comes in metal containers or glass bottles. Bonds on contact and remains flexible, with high resistance. Used specifically for covering surfaces with veneer or plastic laminate.

Resorcinol—A resin glue that comes in two parts, which are mixed together. Completely waterproof with high strength for exterior wood to wood joints.

Epoxy—Comes in two parts—a resin and a hardener. Very difficult to remove once it hardens. Waterproof and oil resistant, can be used on a wide variety of materials, both porous and non-porous.

● Types of Abrasives

Steel Wool—This abrasive is made from finely shredded steel, which produces minute sharply cut shavings that leave a very smooth surface—available in grades from medium to superfine. Used for cleaning, smoothing and removing finishes softened by paint remover. Very useful for veneer furniture, where the wood surface is very thin and could be damaged by sandpaper and for smoothing the final coat of varnish lacquer or some other finishing material.

Silicon Carbide—An artificial abrasive made by fusing silica sand. Color, gray, green, or black. Can be purchased with water resistant backing and can be used with water or oil to rub down the final finish coats.

Aluminum Oxide—An artificial abrasive, with a base of the natural clay-like mineral, bauxite. Color, white.

Emery—A natural abrasive, an impure form of crystalline alumina. Much softer than aluminum oxide. Color, dull black.

Garnet—A natural abrasive mined in the United States. Color, red.

Flint—Also called quartz. A natural abrasive. Least expensive of all abrasives and very soft, therefore, not as effective as other abrasives. Color, yellow.

Pumice—A natural abrasive, made from volcanic stone. Used for final polishing, cutting down finishing coats of varnish, etc. Several grades of fineness. Color, off-white.

Rottenstone—A natural abrasive. Negligible cutting action but a good polisher. Color, off-white.

● Sealers

Sanding Sealers—Can be purchased in paint or hardware stores. Make sure sanding sealer can be used with the finish you plan to use.

Other Sealers—Sealers can also be made by thinning the finish, applying it to the top surface, and immediately wiping off.

● Wood Grain Fillers

Paste Wood Filler—Contains a greater amount of pigmentation than the liquid wood fillers. It is used on open-grained woods such as walnut, butternut, oak, ash, and mahogany.

Liquid Wood Fillers—Used on close-grained woods such as birch, cherry, maple, and cherrywood—may use a surface sealer instead of liquid wood filler.

● Stains

Pigmented Oil Stains—These are compounds of oil soluble dyes dissolved in oils such as benzol, naphtha, toluol, or turpentine. These are also called wiping stains. Colors are ground in oil solution with linseed oil or some other varnish vehicles.

Water-Based Stains—These are composed of water-soluble dyes and tend to raise the grain of the wood.

● Finishes

Penetrating Resins and Sealer Finishes—These finishes soak into the wood to surround the fibers and fill much of the cell structure near the surface. Some of these finishes have resins in them that penetrate and make the wood harder. The finish becomes part of the wood rather than a build up on the wood surface. Check label to see if penetrating. Very durable finish and easy to repair.

Oil Finishes—Includes tung, Danish and linseed oils. Provide a natural bare-wood look and leaves little or no surface build-up and produces a natural soft sheen. Should not be used over sealers or fillers. Durable finish, easy to apply and repair.

Varnish Finish—Today most are made of synthetic resins or a combination of synthetic resins with natural gum resins. Produced in high gloss or satin gloss, generally. Takes longer to dry than other finishes, therefore, dust specks may be a problem.

Synthetic Finishes—such as polyurethane (urethane) acrylic, and epoxy (catalytic finish). These are recommended whenever a hard, abrasive, or chemical-resistant finish is needed. May take a long time to dry, therefore, dust specks may be a problem.

Lacquer Finish —Available not only for spraying but also for brushing. A surface finish that dries fast, therefore, dust specks in the finish will not be a problem. Very durable.

Shellac Finish—Provides a beautiful surface finish. It is fast-drying, but not resistant to moisture, alcohol, heat, scratches, and chips.

Wax Finish—Used mainly to protect finishes and bare wood. Not recommended as the only finish.

*Summary of Wood Finishing/Refinishing

General Steps

1. Decide on a piece of furniture and what you would like to accomplish.
2. Remove fittings and hardware (pulls, mirrors, etc.). If at all possible, it is better to take the wood pieces apart when removing the old finish.
3. Wear an apron to protect your clothing and gloves to protect your hands.
4. Remove finish using the instructions found on the can.
5. Repair and glue if necessary.
6. Sand with the grain of the wood until very smooth.
7. Clean and dust with a clean, lintless cloth or vacuum and then use a tack rag. Make

- sure the room is also dust free.
8. Consider sealing softwood if it has never been finished.
 9. Fill cracks and gouges. Allow ample time to dry and then sand lightly.
 10. Stain and fill open-pore woods if desired. Follow instructions on containers.
 11. Clean and dust by wiping with a tack rag or cloth dampened with paint thinner.
 12. Apply the first finish coat. Allow time to dry thoroughly.
 13. Smooth with fine steel wool or fine sandpaper.
 14. Dust and use a tack rag.
 15. Apply the second finish coat. Dry thoroughly.
 16. Rub down the final finish with rottenstone or 0000 steel wool and paraffin oil. Mineral oil can be used in place of paraffin oil. This will remove some of the surface imperfections and create a satin finish out of a high gloss finish.
 17. Remove oil with cloth dampened with paint thinner.
 18. Rub with a clean cloth until no fingerprints show.

***Safety Refinishing/Finishing Tips**

Take precautions when using finishing materials or cleaning solvents. The words “Flammable” or “Keep away from flame” on containers mean that the products give off flammable vapors at room temperatures. When a container is opened, flammable vapors are emitted.

As soon as one of these substances is spread on a surface, the fumes are released much faster. As these fumes mix with air, they will burn or explode if a spark or flame ignites them. Striking a match, operating a light switch, or even the pilot light in a gas range or water heater can ignite such fumes. The following are some safety refinishing/finishing tips:

- Read the manufacturers labels and pay attention to their warnings.
- If at all possible, work outdoors to get adequate fresh air.
- If you must work indoors, provide good cross-ventilation to carry vapors away quickly, to prevent toxic effects from breathing fumes, and to reduce the danger of fire. Use a window exhaust fan if possible
- Do not smoke in the area where you use flammables.
- Replace caps immediately after pouring finishing liquids.
- Do not let containers of flammable liquids stand uncovered. Place cover on container while you work.
- Wear gloves and goggles (if you do not wear glasses). If remover is splashed on you, wash immediately.
- Keep an eye cup and a small bottle of water with refinishing supplies to use if remover is splashed in eyes. Store both in a polyethylene bag to keep them clean.
- Place rags or papers used in finishing in metal-covered cans after use. Discard at once. Do not leave them crumpled in open container, as they are subject to spontaneous combustion under certain conditions and, therefore, can start fires.
- Immerse used, oily rags in water immediately and cover with a tight lid. Discard as soon as possible.
- Store finishing materials and cleaning solvents in the coolest place possible, not under sink near hot water pipes.
- Store products containing toxic solvents out of the reach of children.
- Make sure cans are properly labeled.
- Always thin with the proper thinner and never thin with acetone. Acetone is very flammable.

***How to Make a Tack Rag**

A tack rag is very useful in wood refinishing/finishing because it is used to wipe off dust and dirt before applying stains and top finishes. To make a tack rag, wash a piece of closely woven cheesecloth several times, or use a piece of cloth from the tail of an old shirt, tablecloth, or other absorbent but lintless material. Dip it into warm water, slightly wring it out to prevent dripping, wet the cloth with turpentine, and shake it out loosely. Sprinkle varnish freely over the surface of the cloth. Use enough varnish to make the cloth quite yellow. Then, fold and twist it into a tight roll to force out the water and to allow the varnish and turpentine to saturate the cloth. Twist enough to remove most of the moisture. If it should dry out, sprinkle a few drops of turpentine and water over it. If it is too moist, shake it in the air for a few minutes. Always fold rough edges inside when the cloth is used. Store in a small jar with a tight fitting lid. One problem with this tack rag is that it is susceptible to spontaneous combustion. Commercial tack rags are not . A commercial tack rag could also be stored in a small jar with a tight-fitting lid so it will not dry out.

Reference:

Be An Aware Shopper, A Pacific Northwest Cooperative Extension Publication, Oregon, Washington, Idaho.

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Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert L. Gilliland, Vice President and Director, Cooperative Extension Service, Utah State University. (EP/07-95/DF)