

MyRepairKit

Repair Furniture Like A Professional!



"The Hobbyist" Complete Repair Kit Pictured

A Masterclass By Eric Jacobson

I'd like to thank my amazing fiancé, Michelle, for unwavering support and unconditional love! I would also like to thank our kids, grandkids, parents, brothers, sisters, nieces, nephews and friends

Whom all provided assistance or motivation to complete this project.

Thank You and Love You All!

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Some restoration products may be extremely flammable. Keep restoration supplies away from open flames and sparks and store in a cool ventilated space.

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About the Author

Often I look back on my life and wonder where I would be if it wasn't for my uncle, Tom Schoenbauer. I'd like to give a special THANK YOU to Uncle Tommy for being instrumental in my growth personally and professionally!

My journey unknowingly began around 6 years old, while staying at my uncle's house. At this point Tom was already a seasoned furniture restorer, but he was not a furniture refinisher. He carved out his own niche, strictly performing repairs, in clients homes, primarily for moving and insurance companies.

As a child I would sit back and watch my uncle perform repairs. I would be amazed that something that once was shattered, broken or horribly damaged, looked virtually perfect once he performed his magic.

I only lived with my uncle briefly, but that didn't stop him from paving the way for the rest of my career. It really started when I was around twelve or thirteen years of age, uncle Tommy owned an art gallery in Annapolis, MD, off of State Circle.

Several weekends for months, Tom would have me come help prepare the gallery for its grand opening, which included creating some stucco walls, painting, carpentry and the occasional lesson in restorations.

Once the gallery opened, there was a back room dedicated to art and ceramic restoration along with furniture or anything else he was working on that could fit around the workbench.

Through the years I continued going to the gallery, but instead of working on the building, Tom would give me several small projects like a broken plate or ceramic statue to work on. He would give me direction on what he wanted done and the technique required to do the task.

Through Tom's guidance I grew a love for performing restorations, primarily because I started to be the one that took something shattered or broken and had the ability to restore it, which was really satisfying once I understood all the repair products and processes.

Even though Tom had his art gallery, he still regularly performed repairs in clients' homes, for moving damages or insurance claims. Often on weekends I would assist him on jobs that required two people, being the muscle, helping by performing my own repairs, or just sitting back watching the master at his craft.

In 1996 I graduated high school and shortly thereafter Tom set up a meeting with my cousin, Bill Schoenbauer, who owned a larger restoration company named Schoenbauer Furniture Service, in Charlotte Hall, MD.

Schoenbauer Furniture Service is where I further developed and honed my skills. I started primarily refinishing furniture in the shop. This gave me immense insight into the construction of furniture, along with a lot of experience sanding, gluing, filling, replacing parts and so much more.

After about a year, I started riding with some of the other techs, out on the road, doing repairs and being a helper. Shortly thereafter I received my own van and started performing my own inspections and repairs.

In 2004, after working at Schoenbauer Furniture Service for around eight years, I felt I had realized my full potential there, and decided it was best to branch out. I had a few small accounts I was working for, but it wasn't enough to cover everything so I briefly worked for a distant cousin in the industry, Gene Shontere, of Shontere Restorations.

I really appreciated working at Shontere's because it gave me the opportunity to work with another one of my uncles, Uncle Ron, who also greatly helped my growth in restorations.

I left Shontere's in 2006, after obtaining enough consistent work to officially start my own business, Jacobson Restoration, LLC. Things were going great for a while, at least till the 2008 housing crisis hit, which really affected the moving industry, and me!

I found myself still having some work but not enough to sustain. A guy who assisted me in my time of need was Phil Termini with Termini Brothers Furniture Repair. Phil hired me part time to help out around his shop in Gaithersburg MD, performing repairs and refinishing.

Phil always took additional time to show me new techniques or explain to me why he did certain unique things when performing restorations and repairs. Phil is a phenomenal mentor and I still go to his shop regularly, as we still trade some jobs back and forth. He still takes time to teach me new things whenever I walk in on one of his projects.

Eventually sometime around 2009-2010 things got back to normal and I've been self sustained since. I couldn't have done it without all my mentors, along with many others that were not mentioned.

It's with great hope that I've streamlined and condensed all the knowledge and techniques I've learned into this book for your reading satisfaction!

Introduction

There is a big difference between furniture refinishing and furniture repair. Refinishing entails completely removing an existing finish to bare wood, usually by means of chemicals.

Followed by an extensive amount of sanding to smooth out the surface and remove damages like scratches or gouges. Application of a stain and adding several layers of finish while also sanding in between those coats to completion.

This isn't a book about refinishing, but most of the techniques you will learn throughout these chapters will be applicable, as there are almost always defects or imperfections that need to be addressed during the refinishing process.

There's an extensive amount of information, books, videos or in person courses available to teach you how to refinish furniture, but rarely will you find resources with a large amount of instruction with regard to furniture repair.

Most often you will only find a chapter dedicated to the topic in a book about furniture refinishing. A chapter here and there is nowhere near enough information to give you the full scope of the complexity involved with most repairs.

Furniture repair is taking some type of furniture which sustained damage (gouges, scratches etc.), and using products like glue, fillers, pigments, padding finishes and skill to disguise the damage, while also manipulating the existing finish back to a condition that has limited diminishment of beauty and utility.

Before delving straight into the nitty gritty details of performing repairs, it's important to go over a few things and give you a quick synopsis of what you're getting yourself into, with regard to this book.

The first chapter, "Let's Talk About Wood", will expand on some of the most common wood species, along with some of their unique characteristics, so you can identify what type of wood furniture you'll be working with most often.

Understanding some species attributes, like strength, will also be critical while performing structural restorations (something's broken).

Secondly, each species of wood will project a specific "color". You can't always see this "color" in fresh cut wood, but when wood has been dried, and a clear finish is applied to a raw wood surface, the color and natural beauty of the wood becomes visible and greatly enhanced.

From here on out the term "color" will be referenced, the majority of time, with two different terms, "hue" or "tone".

Tone can be considered the “base color” exhibited naturally by the wood, which has not been altered by the use of stains or paint. As we just spoke about, every unique species of tree will have their own inherent tone.

For instance, tones can vary even within the species but in general, pine may have a naturally whitish to yellowish tone, mahogany may have an orangish to reddish tone, rosewood may have a purplish tone, poplar may have a greenish tone, among countless other unique wood types.

Hue is a description of a precise, concentrated color, i.e. hot pink, cobalt blue, chartreuse, olive, etc. Hue will be mentioned more often with pigments or wood that has been stained/colored, or has a dyed protective clear coat/finish already, possibly even painted.

Any species of wood can have any hue by the application of particularly colored stains or paint. The chapter titled “Crash Course on Color and Light” will greatly expand on the topic of color, which will assist with color blending during the repair process.

Ultimately you’re going to be “painting” an area, in an attempt to disguise the damage you were tasked with repairing. I refer to this part of the process as performing “cosmetic repairs”. These techniques are covered extensively in the chapter, “Pigments & Their Application”, accompanied by several other restoration samples throughout this book.

From here on out the term “painting” will be replaced, the majority of the time, with “touch up”. When performing various touch ups, your job will be to figure out what mixture of pigments are required to create the targeted hues needed to conceal an area of damage. Notice the term “hues” is plural, as almost no piece of wood will consist of just one “color”.

With regard to both types of restorations, structural and cosmetic, more often than not, you’ll have to incorporate the use of a synthetic filler to “fill” those damages, more on that topic in the chapter titled, “Surface Damages”.

Some of the purest craftsmen may not agree with the way I perform some repairs. They may say that performing a repair in a certain manner is not ideal, or for an antique piece of furniture, a repair will depreciate the value.

My response is usually to say, it’s completely up to the client to decide whether they want to have their damaged piece of furniture repaired, we are going to make a structural or cosmetic repair virtually undetectable to 99% of the people who will see that piece of furniture.

If you’re not a collector or never plan on selling your furniture, you should, in my opinion, at least have your furniture functional. What’s the point in having a broken or unappealing piece of furniture because of a few irrelevant dollars?

Over the 25+ years that I have been in the restoration business I've come to two conclusions. First, just about everyone, private or commercial, owns a piece of furniture, and secondly, nearly every piece of furniture owned likely has some type of damage, unless you have one of those "off limit" rooms.

Additionally, on countless occasions while performing repairs for various clients, they would request I look at or assess damages to other pieces of furniture they own, and ask me to explain to them some easy process that they could perform to repair the damage themselves.

Unfortunately, there was no easily accessible information or products/systems available for repairs that I could tell them about. For the most part, I could only point them in the direction of obtaining touch up markers, stain pens or something similar from their local hardware store.

Those solutions are usually just temporary, or the limited selection of hues don't really match the furniture they have, making any potential repair or touch up remaining completely noticeable.

Due to these factors I saw the need to create a system, which includes all the information and products a professional would use. By following the instructions and recommendations in this book, anyone can learn to perform repairs just like a professional, to a multitude of items, not just wood.

There are a few other chapters with cool projects or additional information about other unique restorations. If you find yourself successfully performing repairs, I've also included a blueprint for you to start your own business, which with hard work and dedication, could gross you well into six figures, titled "Be A Boss"

Let me also forewarn you, I get sidetracked easily. There are several facts or information throughout these chapters that you may think has nothing to do with furniture repair. Occasionally it's hard to capture the full scope of a discipline without expanding on some background information to support the topic at hand.

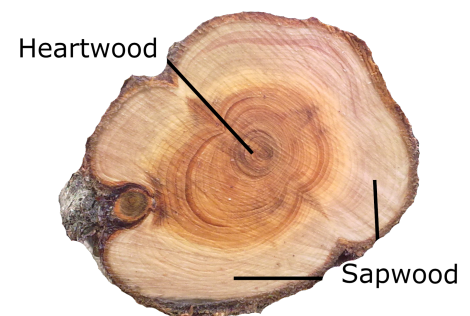
Everything written in this book, in my opinion, is pertinent information to assist with comprehending the restoration process, whether realized immediately or not.

Thank you for your interest in restorations! I wish you good luck on your new found journey of repairs!



Let's begin with some of the basics with regard to wood. Looking at the picture of this freshly cut tree to the right, you can see there are three distinct areas.

The outer ring is the bark of the tree, but inside the bark, there is a light area called "Sapwood", and the darker center of the tree is called "Heartwood". Both areas play a significant role in the tones that every wood species produce.



Sapwood is the living, outermost portion of a stem or branch, all wood begins as sapwood. It's formed just under the bark by a thin layer of living cells known as cambium.

Cambium produces bark cells to the outside of the tree, and wood cells to the inside of the tree. A tree increases in girth during each year of growth because every year a new layer of wood cells are added inside the cambium, these are the "rings" that you see in a freshly cut tree.

A tree ring equalling one year isn't always an accurate measurement. On occasion, trees can create more than one ring per year, which could be the result of drought or stress during that singular growing season; those are called false rings.

On the other hand, some trees may not produce rings, like the palm tree (right), as they do not produce cambium, palms use a vascular system to grow.

For most other trees, as they mature, in conjunction with the increased need for structural support due to their surging weight, their trunks increase in diameter and significant changes are occurring at the cellular level.



As the older sapwood cells nearest the center of the tree die, remaining mostly intact, they transform themselves into heartwood. Heartwood is very dense, and you can usually distinguish sapwood from heartwood by their contrasting tones.

Although some tones in various wood species can be deceiving, as not all sapwood is light and not all heartwood is dark. Additionally, the relative amounts of sapwood and heartwood in any tree can vary greatly among species, individual trees, and on growing climate or soil conditions.

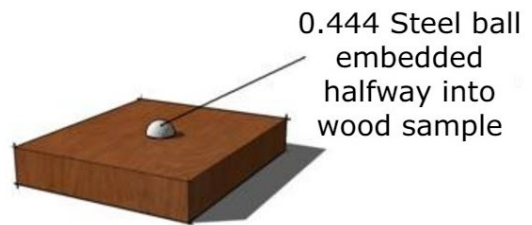
All species of trees generally fall into two categories, "*Hardwood*" and "*Softwood*". A common misconception about hardwood vs. softwood, is that it somehow indicates how hearty the wood is, or its resistance to damage.

In fact, the term "hardwood" simply means the wood came from a dicot tree. Dicot (dicotyledon) trees, also known as "*Angiosperms*", have broad leaves and produce either seeds, nuts or flowers. Examples of hardwoods include walnut, cherry, maple, oak, mahogany, among many others.

"Softwood", on the other hand, refers to wood which comes from "*Gymnosperm*" trees, like conifers. Examples of softwoods are pine, fir, cedar, and others, all which produce cones.

Even though I just stated that the hardwood/softwood moniker doesn't define a wood's heartiness, the terminology usually does translate in the grand scheme of things. Hardwoods do tend to be more dense than softwoods, which in turn make them harder and more durable.

The *Janka Scale* (right) is what determines the hardness or softness of a wood. To perform the test, a steel ball is placed onto the surface of a piece of wood, force is applied to the steel ball until it is embedded halfway into the wood surface.

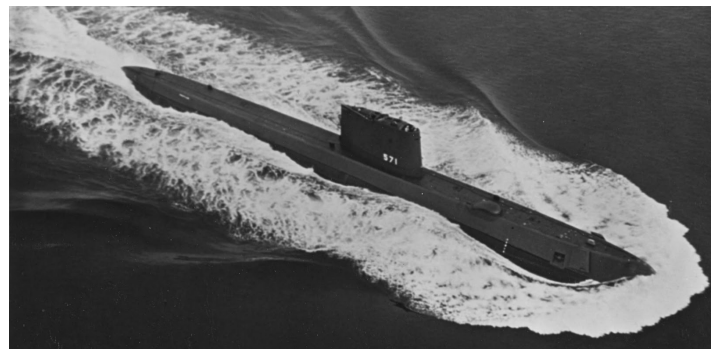


The force is measured in Pounds Force (lbf). The lower the number, the softer the wood, and as I'm sure you can imagine, the higher the number, the more dense/harder the wood will be. Additionally, differing hardwoods/softwoods mostly all have their own unique measurement on the Janka scale.

For example, Lignum Vitae can be found in abundance in Central and South America, it's the national tree of the Bahamas, and is often acknowledged as the "hardest" known wood.

Lignum Vitae, latin for "wood of life", has the finest grain of any wood, creating an iron-like density, so dense that a one foot cube weighs in at 83 lbs., and will not float.

In fact, the first nuclear powered submarine, the USS Nautilus, has its aft, main shaft strut bearings made out of this almost impervious product.



Even to this day, due to the wood's natural self lubrication and virtual indestructibility, ball bearings made of Lignum Vitae are still used in certain ships and hydroelectric power plant turbines.

Lignum Vitae measures in at 4,500 lbf on the Janka scale, compared to red oak, which is 1290 lbf, that's almost four times harder!

On the other hand, Balsa (*Ochroma Pyramidale*) is also a hardwood, but it's one of the "softest" hardwoods, only registering around 100 lbf on the Janka scale.

Aromatic cedar, which is an example of a softwood, is often used to line the inside of closet walls and the inside of this antique pine dresser, that was converted into a blanket chest, is one of the “hardest” softwoods, measuring in around 900 lbf on the Janka scale.

These were just a few examples of why I stated that the hardwood/softwood moniker doesn’t always translate into a wood's physical ability.

Softwoods are used to create furniture, flooring, doors, among many other things, but mostly you’ll see it used in the construction of roof trusses or house stud partitions, in the form of 2x4’s.

Softwoods do tend to be softer than most hardwoods, which make them far more susceptible to damage like gouges and scratches, but a super power of softwood is that it usually won’t crack or split when nailed or screwed, unlike hardwoods.



Since I told you about the hardest wood, it’s only right to expand on the softest wood known. The Cuipo tree (left) is considered to have the softest known wood, which on the Janka scale only registers at 22 lbf. This means you can probably create damage simply by squeezing a piece of its wood between two fingers.

When first looking at furniture, you may initially find it difficult to identify all the different wood types, as there are literally thousands of unique tree species.

However, even though any piece of furniture technically could be made from any type of wood, the vast majority of furniture is manufactured from a select few species.

In this chapter, I will expand further on the different characteristics to look for in the composition of various types of wood, which hopefully will assist you with differentiating and identifying the various species simply just by sight.

I usually make two observations at first glance when looking at a piece of furniture. First, I recognize which various common species of wood that a piece of furniture is made of.

The second observation I will make is specifically to the damage in question. The extent of the damage to a surface will determine initially whether a repair is even possible, or if the damage is too severe and the piece of furniture in question is in need of refinishing. You can't always put lipstick on a pig!



In this picture of a nightstand top, the finish is severely chipping and flaking off due to neglect and water damage. Damage similar to this is far too advanced for a "spot repair". I would consider this top, not repairable, without refinishing.

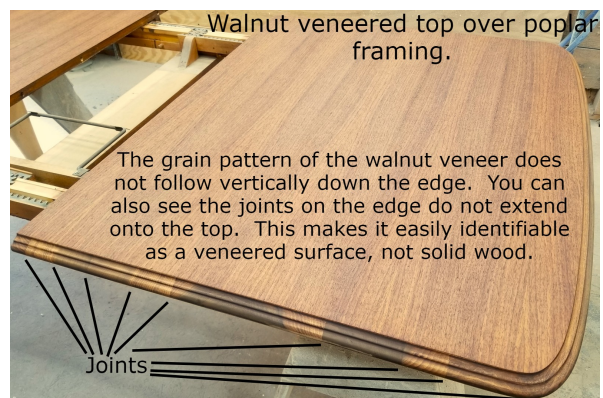
My third observation is whether the piece of furniture in question is solid wood or veneered. This observation alone usually doesn't make much of a difference in the grand scheme of things, unless the piece in question requires refinishing.

There are a few ways to determine if the piece of furniture is solid wood or not, as solid wood furniture will usually consist of more than one plank of wood glued together.

Depending on the width and construction of any particular piece of furniture, you should expect to see none, one or several "joints".

Observing "joints" of a wood surface alone will not always be an identifier of solid wood vs. a veneered surface, as a veneered surface can easily duplicate the appearance of "joints".

Most often you'll have to rely on the "side edge" (left or right edge) or "rear edge" to determine the construction.



You may possibly even look at the underside of the wood panel in question, if you can access it, to see if the same grain pattern that is on the top continues through to the underside, which if so, would likely make it a solid wood surface.

Look at the top surface and follow the grain pattern of the top down the left or right edge. If it's a solid wood surface, you should see what is referred to as, "end-grain", like in the picture to the right.



You can easily see that the grain pattern continues from the top surface, vertically down the item's edge.

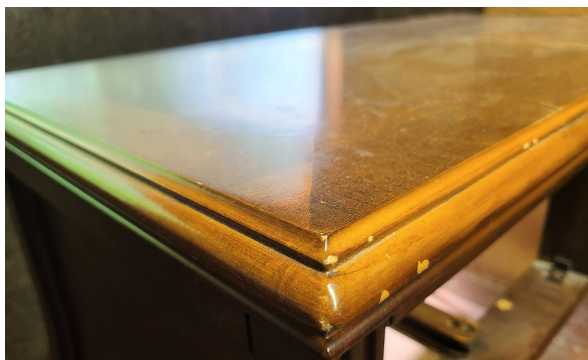
Be cautious when looking at the front edge of a top surface, such as a dresser or buffet, as that edge may not always be a true detector of solid wood vs. veneer.

On a front edge (and possibly rear), the grain pattern most likely will run parallel with the grain pattern of the top surface, therefore appearing to be one consistent piece of wood, which could make it easier to mistake for a solid surface.

Conversely, some solid wood constructed items may have edges that are veneered (right) to cover some unsightly end grain, or there may be a thicker, solid wood edge attached to a veneered or plywood surface (second picture right).



Some edges may not be either, on a finished piece of furniture it's not uncommon to see the edges painted by the manufacturer, in an attempt to mimic a grain pattern.



Look closely at the picture to the left, that's the top edge of a nightstand.

It appears that there is a grain pattern, but in reality, the edge is completely "painted" by the manufacturer to blend with the top surface.

This piece of furniture is being refinished, and after the finish has been removed you can see from the picture, the top is actually made of MDF (medium density fiberboard), with only the center of the top surface being a veneer.



That is the reason the edge was painted, now I'll have to "repaint" that edge during the finishing process to make it look like wood again.

In our case, this was part of a bedroom set which included an additional nightstand, dresser with a tri-fold mirror, and a two piece tall chest.

Re-painting the edges of everything probably added two hours to the total restoration. If you were observant and pointed that out to the client, you may be able to increase your refinish cost slightly to reflect the additional time needed.

As you may have noticed, the client also wanted to completely change the appearance of the set to a darker walnut tone.



Along the same lines as painting the edges, some faux painters are amazingly talented! Take this cabinet below, which is actually a built-in unit, owned by my absolute favorite clients, Mr. and Mrs. F.

It was painted by Mr. F.'s brother and that's not real wood that you see, it's entirely painted to simulate wood, most people would have no clue.





The picture to the left is a close-up of the top edge, it's still hard to tell that it isn't even "real wood".

In this case, I can tell the unit is completely painted because the grain pattern doesn't appear "true" to me, but additionally, the miniscule bumps in the finished surface appear like the "bumpy" pattern of house paint on a wall, it's not as smooth as a sprayed finish.

A sprayed finish shouldn't have any texture, but

finishes applied by hand often will.

See the picture to the right for the texture. Now look at your painted wall, the texture is virtually the same.

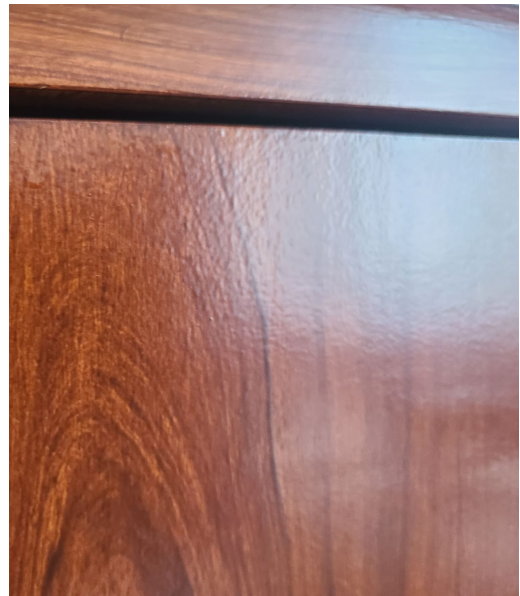
If you were to start sanding this painted surface, you would immediately begin to remove the color/paint and the simulated grain pattern from the surface completely.

The further you sand, the larger the area will become, and the more simulated grain pattern you lose, the more difficult it may be to replicate, possibly getting you in trouble if you cannot recreate that area with your touch up products.

Other identifying characteristics of a veneered surface, may be, if the grain pattern on the edge is running perpendicular, compared to the grain pattern of the top surface.

If the grain pattern runs in two completely opposite directions, that is a sure sign the edge, either consists of veneer, or it's painted.

Just understand that solid wood surfaces most likely will not have any veneer on the edges, unless we're talking about inlay.



Inlay, is a type of veneer, which is often a secondary (or more) wood type, that is usually a different species of wood than what is used in the overall construction of a particular piece of furniture

Inlays can be seen on solid wood or veneered surfaces. The various woods are cut into very thin pieces, made into a pattern and installed into a pre-cut void or pocket, often to add an artistic aspect to any piece of furniture.



It may take more of a trained eye to decipher if a wood panel is actually solid, veneered or painted, but once you begin to recognize the varying characteristics, identifying solid wood vs. veneer will become second nature with most furniture you'll come across, and it should be something that only takes a couple seconds to notice.

Try going to a furniture retailer and see how many characteristics you now notice that you wouldn't have in the past. You should now be able to observe how "low quality" most newer furniture is constructed and finished, but go to an estate sale, antique dealer or hi-end retailer/consignment shop and you'll be better prepared and understand the quality of what you are viewing/purchasing.

Determining whether something is solid wood or veneered still doesn't tell me what type of wood it is. When it comes to actually attempting to identify a wood species, there's one characteristic that is unique to every piece of wood, its grain pattern!

"Wood-grain" refers to the alignment, appearance and texture of the wood fibers.

All species of wood fall into three basic "wood-grain" categories, which also could be thought of, as to how deep, or visually apparent the grain cavity is.

Coarse-grained has the deepest of cavities, examples are Oak (right), Butternut and Ash, among others.



Medium-grained, the grain cavity is apparent, but minimally shallow, examples are mahogany and walnut (right), among others.

Lastly, there is fine-grained, the surface has extremely miniscule, to non-existent grain cavities, as found in birch, maple, pine (below) and others.



All the factors that we just went over should greatly assist you in identifying unique characteristics of any particular piece of furniture. Further, I will attempt to expand on some of the most common wood species that you may come across with regard to furniture.

I will do my best to provide an example of the wood in its natural, unstained, unfinished state, along with accompanying pictures of what that stated wood may look like if finished in various traditional hues.

PINE

Pine, is part of the Gymnosperm family, and consists of four major groups, Conifers, Cycads, Ginkgo and Gnetophytes.

Conifers are by far the most diverse, ecological and economically important gymnosperm group on the planet, with approximately 588 species, grown on every continent in the world except Antarctica.



There are more than 100 species of pine in the northern hemisphere, making them the most abundant species of tree in North America.

Being a soft, fine grained wood, It's relatively easy to recognize pine furniture by the frequent presence of dark knots throughout, along with its traditional light beige to yellowish tone.



Even though there are plenty of examples of pine furniture used in people's homes as of today, due to the wood's relative softness, and its ability to easily attract gouges and scratches, pine is not generally used by craftsmen that produce high end furniture, cabinetry or flooring.



On the Janka scale, pine only registers around 380 lbf, in comparison, walnut is 1010 lbf.

Even though pine may be gouged and scratched easily, it is actually an extremely versatile, very strong, wood species with numerous uses. A few beneficial characteristics are that it doesn't shrink or swell very much and is extremely shock resistant.

Pine was an extremely important resource in the colonial years of the United States, which included the building of virtually all structures, including their interior millwork and furniture.

American and British shipbuilding during this period also depended on the resource to build their fleets, which eventually led to the Pine Tree Riot of 1772.

This was considered a major precursor to the Revolutionary War, and partly fueled America's rebellion for independence.

Pine sapwood usually appears pale and creamy, sometimes with yellow tones.

The heartwood may vary from a straw-like color to a deep yellowish-tan.

The resin ducts are also seen as the darker portions of the grain pattern, often appearing as fine, light to medium brown lines. The knots of pine could appear as light to dark, various shaped and sized brown circles.

