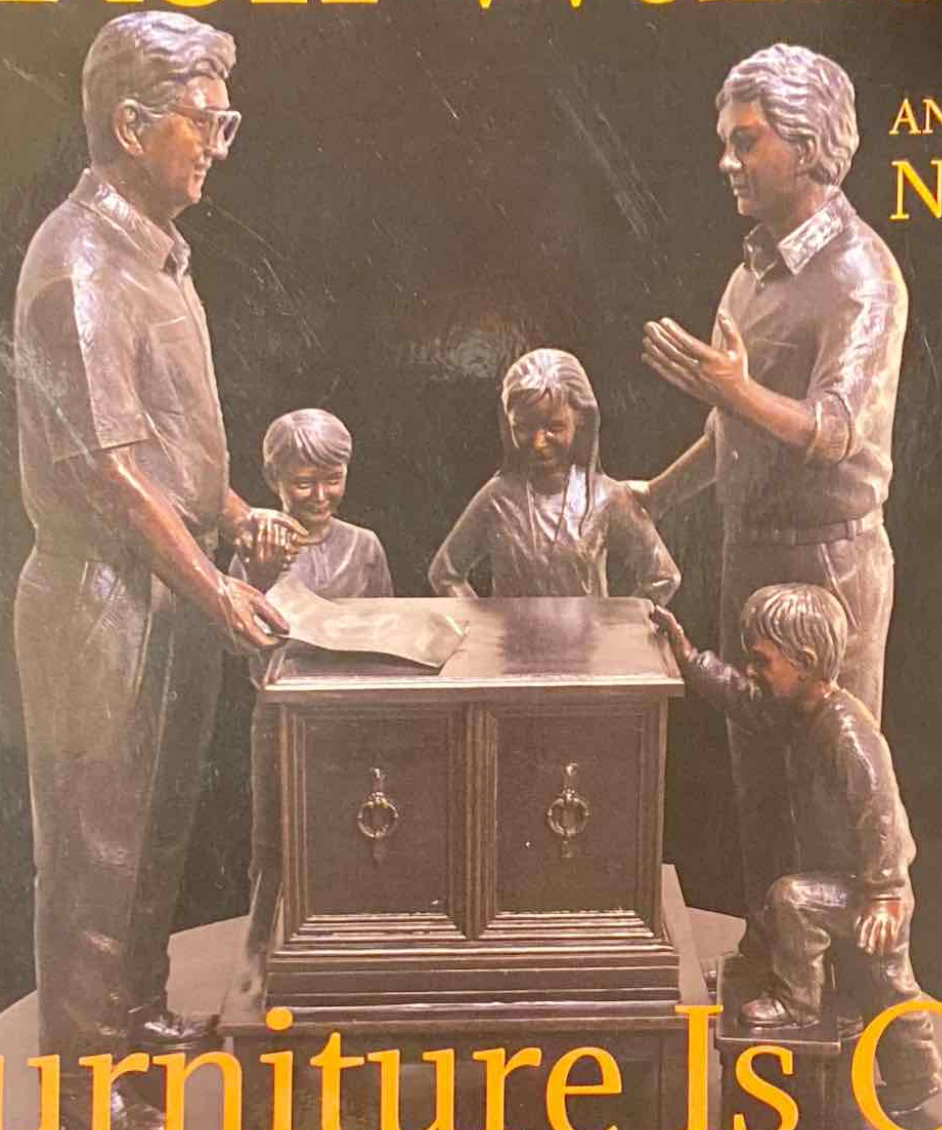


# Ron Waneke

AND BILL  
NAPIER



# Furniture Is Our PASSION

 **ASHLEY**<sup>®</sup>  
FURNITURE INDUSTRIES, INC.





***Approximately 65% of all furniture made today is constructed of a variety of engineered woods. Engineered woods are less likely to split, warp, or crack than solid wood made furniture. It is a more stable and uniform product, environmentally friendly and more cost effective, increasing the value and longevity of your furniture.***

## **The Evolution Of Wood And Wood-Based Products**

There are various methods for the design and construction of wood furniture. The advent of various manufacturing technologies has continued driving the trend toward an ever-growing diversity of materials used to produce furniture of all types.

These various technologies have resulted in new types of materials, sometimes stronger and more capable of design intricacy – as well as increased affordability. The following references help summarize some of the wood related components of furniture materials.

## **We Comply To The Lacey Act**

The Lacey Act is a 1900 United States law that bans trafficking in illegal wildlife. In 2008, the Act was amended to include plants and plant products such as timber and paper. This landmark legislation is the world's first ban on trade of illegally sourced wood products.

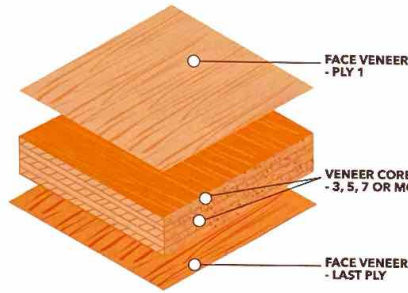


## Panel Cores

Plywood is composed of at least three elements: a face, a back and a core. Holding these pieces together is the glue line or glue. Each type of core has a specific use and represents a better value or better product for the specific use. The most common type of core used prior to World War II was veneer core.

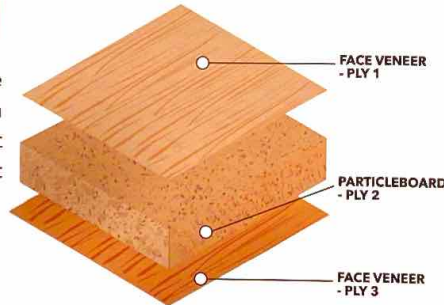
### Veneer Core Plywood

Layers of veneer are pressed together in alternating perpendicular layers, balanced on either side of a central core layer. This type of plywood is more prone to surface irregularities and defects, but it exhibits greater strength in bending and in stress than the other core types.



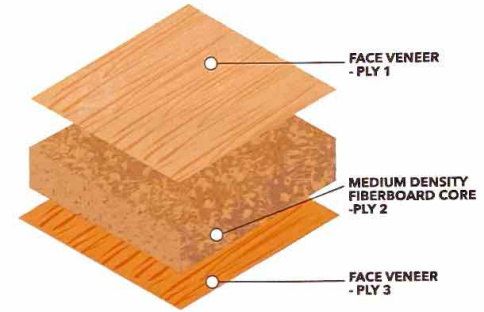
### Particle Board Core Plywood

Particle board is produced in large plants on a continuous press line from wood chips, glue and resins and then cut up into panels. Its surface is smooth but some small voids are always present.



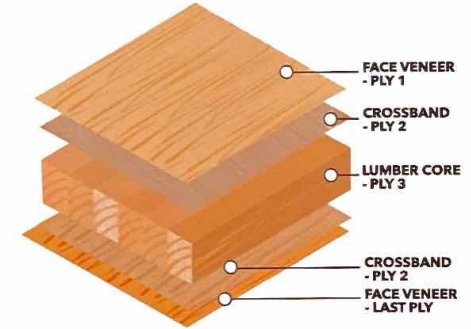
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Fiberboard is the flattest and smoothest core for plywood. Medium density fiberboard (MDF) makes a superb carrier for veneer. It has few surface imperfections or voids and is dimensionally stable and flat.



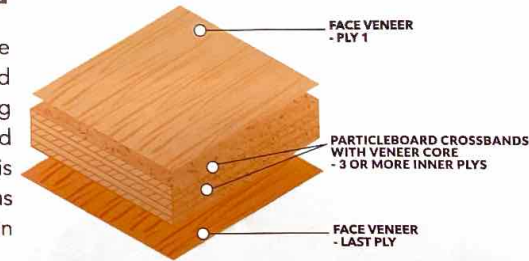
### Lumber Core Plywood

Lumber Core is manufactured from thin strips of lumber glued on edge and covered by a veneer crossband perpendicular to the core's grain direction. When lighter cores are required or specific strength in one direction is required, lumber core plywood is often used.



### Combination Core Plywood

Engineered wood is a new type of core utilizing the strength and lightness of veneer core, but having improved flatness, rigidity and dimensional stability. The core is made of linear strips of thick fibrous veneer glued and pressed together in an irregular pattern.





## Engineered Wood

Designed for today's furniture buyer. Engineered wood is REAL wood and is GREEN by nature. A USDA Forest Service study shows that on average, only about 63% of a harvested tree can be used to make solid lumber. In the past the remaining 37% was either burned or placed in landfills. With the advance of engineered woods, now 95% of the tree can be used.

Engineered wood is widely used affordable furniture to have the look of more expensive and exotic designs.

**With decades of research and development, today's engineered woods are structurally superior and more durable. It has a more uniform strength and is free from defects. It is also highly resistant to warping, cracking and splitting. It does not have knots, voids or other surface imperfections.**



 **ASHLEY'S STEELSON BEDROOM SET**

## All Wood Or Solid Wood Furniture

This applies when all the parts manufactured are made of solid wood. However, there may be parts of the final construction used in joints or frames that could be made of engineered wood, such as plywood.

## Hardwoods

Hardwoods are derived from deciduous trees such as large leaf trees such as Oak, Ash, Maple, Cherry, Walnut, Beech, Acacia, Birch, Mango, Cashew, Chinkapin and Poplar.

Rubber Wood, which has many of the beneficial design characteristics of Maple, is used extensively for furniture product imported from Asia.

Tropical hardwoods such as Mahogany, Teak, Rosewood and Cocobolo are not native to North America and must be imported for use in the manufacturing process. They are very dense, creating a more durable product. It should be noted that these woods are highly regulated due to their overuse and some are considered endangered species.

Hardwoods are easy to recognize because they lose their leaves during the winter season. Hardwoods are the preferred materials used in the production of better, high-quality furniture because of strength, endurance and overall stability. Hardwoods can be difficult to finish if the final product has curves, carving or complicated detailing.

## Softwoods

Softwoods are derived from coniferous trees, which have needles instead of leaves and they do not lose them during the winter season. They grow much faster than hardwoods, resulting in a less expensive and more abundant resource for the manufacturing of furniture. Approximately 80% of all timber comes from softwoods and is used in building construction, such as windows and doors. In addition, softwoods contribute to the creation of MDF (Medium Density Fiberboard) and other wood products.

Pine is an example of a coniferous wood that is commonly used for furniture – leveraged for its ability to absorb paint, varnishes, oils and urethanes to create a distinctive look. Some additional softwoods include Douglas Fir, Hemlock, Alder Eastern Red Cedar, White Cedar and Aspen.

## Fiberboard

Fiberboard is a manufactured product that is inexpensive to make and offers a sturdy foundation for construction. The production process involves breaking down hardwoods and softwoods into fibers, which are then bonded together using wax and/or resins. Heat is used to bond the fibers together, producing an affordable and sturdy material for manufacturing and design.



### Did You Know?

*When you see the green leaf next to a product definition it indicates that the product is green and sustainable with minimal waste!*



## MDF - (Medium Density Fiberboard)

Medium Density Fiberboard (MDF) panels are manufactured with a variety of physical properties and dimensions, providing the opportunity to design the end product with the specific MDF needed. MDF is a composite panel product that typically consists of cellulosic fibers, combined with a synthetic resin (or other suitable bonding method) and joined together under heat and pressure.

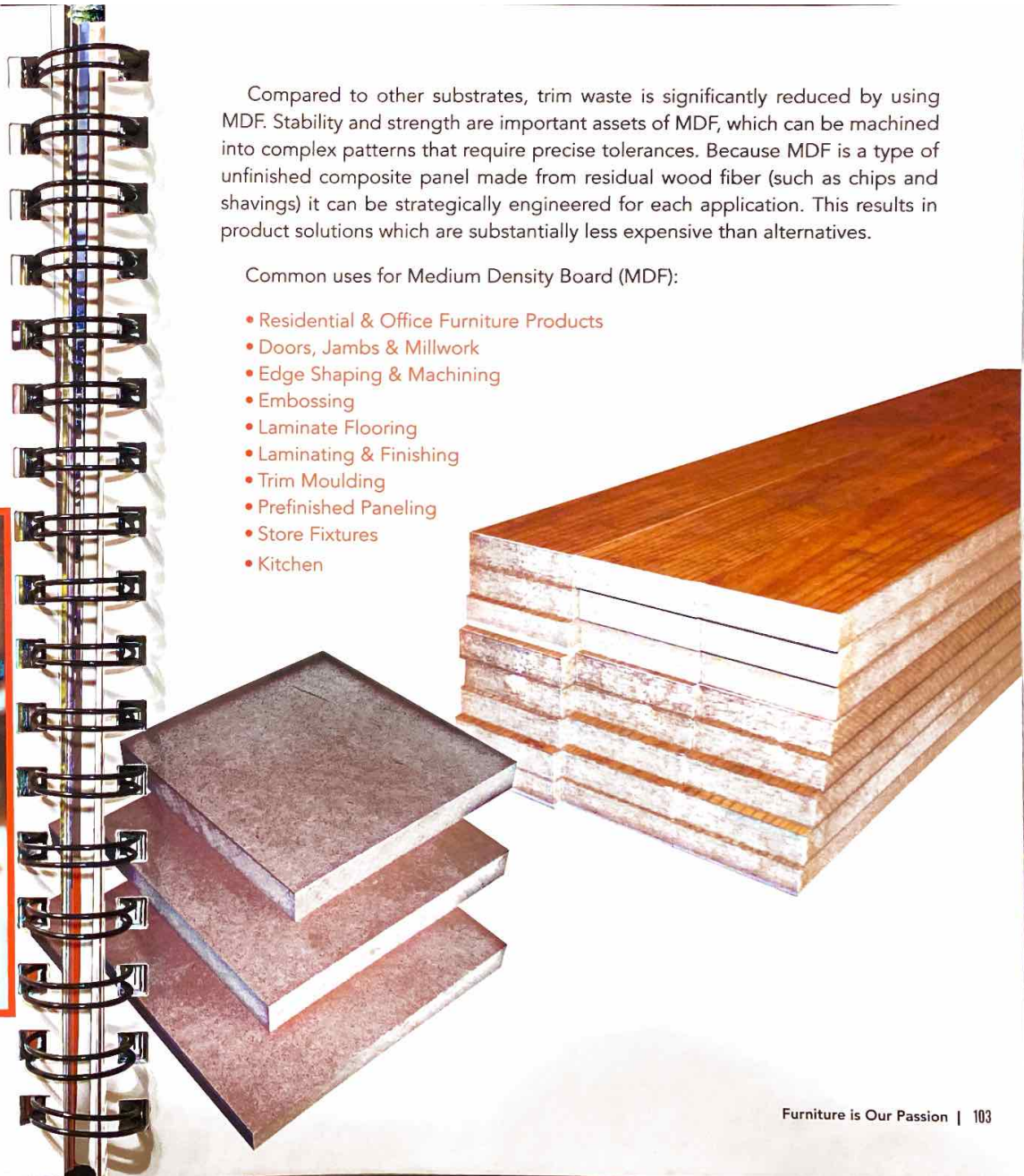
Additives may be introduced during manufacturing to impart additional characteristics. The surface is flat, smooth, uniform, dense and free of knots and grain patterns. The homogeneous density profile of these panels allows intricate and precise machining and finishing techniques, producing superior finished MDF products.



Compared to other substrates, trim waste is significantly reduced by using MDF. Stability and strength are important assets of MDF, which can be machined into complex patterns that require precise tolerances. Because MDF is a type of unfinished composite panel made from residual wood fiber (such as chips and shavings) it can be strategically engineered for each application. This results in product solutions which are substantially less expensive than alternatives.

Common uses for Medium Density Board (MDF):

- Residential & Office Furniture Products
- Doors, Jambs & Millwork
- Edge Shaping & Machining
- Embossing
- Laminate Flooring
- Laminating & Finishing
- Trim Moulding
- Prefinished Paneling
- Store Fixtures
- Kitchen







## Oriented Strand Board - (OSB)

OSB is an engineered wood, similar to particle board. It is manufactured by compressing multi-directional pieces of wood chip products with adhesives under high heat and pressure.

OSB and plywood are considered equal in strength but **OSB has twice the shear strength of plywood**. Because of this strength, it is widely used for webbing, wooden I-joints and other structurally important applications.

Manufacturers prefer OSB because of its strength and because it is less expensive than plywood. Furthermore, OSB can be harvested from small, fast-growing trees on sustainable tree farms, enabling support for forest preservation.

OSB is used to produce products such as:

- Furniture - Joinery
- Kitchen Cabinets
- Flooring – Stairways
- Roofing - Sheathing
- Interior Paneling
- Exterior Structure Support
- Manufactured Interior Beams





## Particle Board

Particle board is a composite panel product consisting of cellulosic particles of various sizes. These particles are bonded together with a synthetic resin or binders, under heat and pressure. Particle geometry, resin levels, board density and manufacturing processes may be modified to produce products suitable for specific end uses. At the time of manufacturing, additives can be incorporated into the particle board to impart specific performance enhancements. Such properties include greater dimensional stability, increased fire retardancy and moisture resistant. Because particle board is a type of unfinished composite panel, made from residual wood fiber (such as chips and shavings) it can be strategically engineered for each application. This also results in the ability to create products that are substantially less expensive than other alternatives.

Today's particle board gives industrial users the consistent quality and design flexibility needed for fast, efficient production lines and quality consumer products. Particle board panels are manufactured in a variety of dimensions and with a wide range of physical properties that provides maximum design flexibility for specifiers and end users.

Common uses for Particle Board:

- Residential and Office Furniture
- Countertops
- Door Core
- Floor Underlayment
- Kitchen Cabinets
- Manufactured Home Decking
- Shelving
- Stair Treads
- Store Fixtures



## Plywood

Plywood is a manufactured wood panel made from thin sheets of wood veneer. It is one of the most widely used wood products. It is flexible, inexpensive, workable, reusable and can usually be locally manufactured. Plywood is used

instead of plain wood because of its resistance to cracking, shrinkage, splitting, twisting with warping and its general high degree of strength.

Plywood layers (called veneers) are glued together with adjacent plys positioned with their grain at right angles to each other. This process of cross-graining has several important benefits:

- Reducing the tendency of wood to split when it is nailed at the edges
- Improving dimensional stability by reducing expansion and shrinkage
- Strengthening the panel consistently across both directions

Plywood is typically made with an odd number of plys, which helps to balance the sheet and reduce warping. This method of bonding an odd number of plys with cross-grained layers results in hard grain designs with exceptional strength.

### Softwood Plywood

Softwood plywood is usually made either of Cedar, Redwood, Douglas Fir or SPF (collectively known as Spruce Pine Fir). This material is typically used for construction and industrial purposes. The most common dimension is 1.2 m × 2.4 m or the slightly larger imperial dimension of 4 feet × 8 feet. Plys vary in thickness from 1.4mm to 4.3mm. The amount of plys depends on the thickness and grade of the sheet but it is typically created with at least 3 plys. Roofing can use the thinner 5/8" (15mm) plywood. Sub-floors are at least 3/4" (18mm) thick, the thickness depends on the distance between floor joists.

Plywood for flooring applications is often tongue and groove. This prevents one board from moving up or down relative to its neighbor, providing a solid feeling floor when the joints do not lay over joists. T&G plywood is usually found in the 1/2" to 1" (12-21mm) range.

### Hardwood Plywood

Hardwood Plywood is used for products and construction that demand extra strength, durability and resistant to wear. For example, Birch plywood is known for its excellent strength, stiffness and resistance to creep. It also has a high planar sheer strength and is impact resistance, making it especially suited for heavy-duty floor and wall structures.

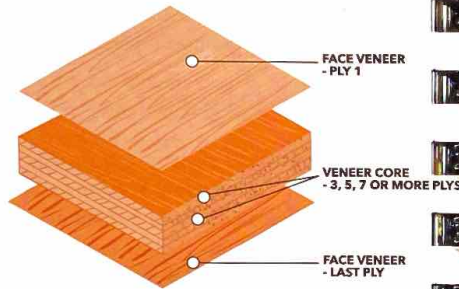


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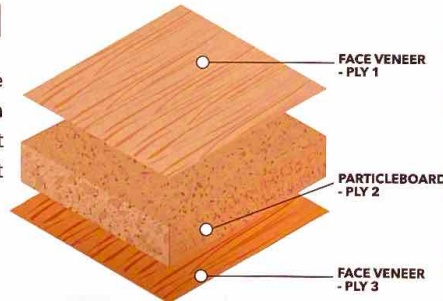
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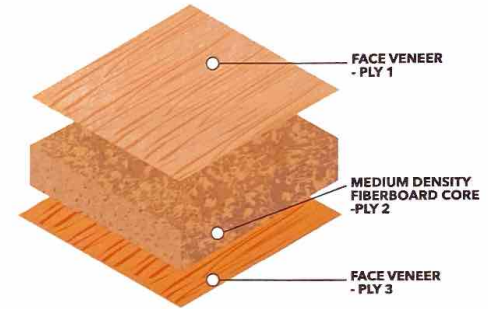
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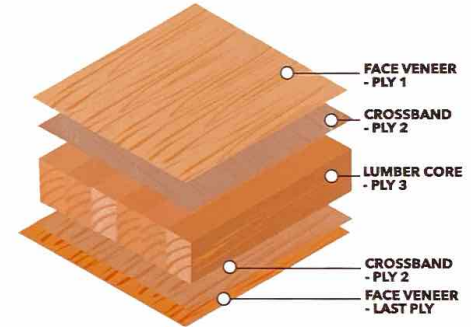
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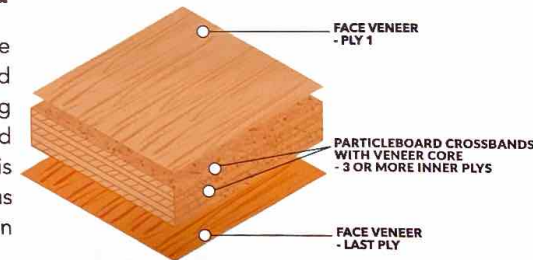
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### Combination Core Plywood

Engineered wood is a new type of core utilizing the strength and lightness of veneer core, but having improved flatness, rigidity and dimensional stability. The core is made of linear strips of thick fibrous veneer glued and pressed together in an irregular pattern.







## The Finishing Touches In Furniture

Wood finishes protect wooden surfaces from moisture and help make the appearance richer and deeper. Different finish colors also are a key part of creating styles that help uniquely capture the personality of each consumer.

While a finish is applied similarly to the process of painting, it is different because a finish emphasizes the look of the wood grains while painting covers the wood completely.

The term "finish" can also represent several coats of finish or it can refer to an entire build-up of the coating. Many new finishes are now water-based, offering more environmentally friendly alternatives.

The wood finishes that Ashley primarily uses for import products are NC lacquers (Nitrocellulose) or some small amount of Polyurethane. Metal components are most often completed with a Powder Coat finish but may also use a liquid coat finish.





**VENEER AND INLAY PROCESSES ARE  
EXTREMELY LABOR-INTENSIVE AND  
EXPENSIVE TO PRODUCE.**



**THE PROCESS OF CREATING FANCY FACED VENEERS.**

## Veneer Laminates And Inlays

Another common decorative surface type used in the lamination industry is natural wood veneer. Composite veneer laminates are available in a variety of wood species, both domestic and imported. Composite panels, like particle board and MDF, are the preferred substrate for veneers due to their superior surface qualities of being flat, smooth, uniform, dense and free of knots and grain patterns. In addition, their dimensional stability, strength properties and cost advantages further increase the advantages of using these substrates. Veneered composite panel constructions are used in many applications including high quality furniture, case goods, store fixtures and cabinetry. Some veneers are used for profile wrapping for high-end millwork applications.

The composite veneers are thinly sliced between 1/50" to 1/25" (0.51 to 1.0 mm) and are available plain or with a paper or fleece backer that have varying degrees of flexibility. The backers provide stability and strength to the veneer and minimize splintering, cracking and checking.

Composite veneers can be overlaid with heat activated resins or they can be coldpressed. The main resin utilized in heat activated processing is a urea-based adhesive used because of faster processing, lower cost and its ability to make the panel more rigid. Heat based systems are also increasingly using a soy-based resin. Cold press systems typically use polyvinyl acetates, casein and contact adhesives. These systems are used for smaller production quantities and may be less rigid than heat activated resin systems.

Common uses for Composite Veneer Laminates:

- Furniture
- Edge Banding
- Ready to Assemble Furniture
- Cabinetry
- Store Fixtures
- Case Goods







## Applied Finishes

It takes a wide variety of complex, layered steps to consistently create the unique look of each mass-produced furniture product. Products with the most complex finishes may travel on the production line for more than a mile as the finishing steps are applied. With consistency and accuracy, the finishing process ensures that each piece has the durability, appearance and high value that each product deserves.

While some products take up to 21 steps, the following illustrates Ashley's 14 Finishing Steps to create high quality finished product:

14. Top Coat 5
13. Scuff Sand
12. Sealer
11. Dry Brush Glaze Hang Up
10. Spray Thin Black Glaze
9. Sealer
8. Clean Up By Cloth And Wire Wool
7. White Wax Powder Glaze
6. Sealer
5. Shade Glaze
4. Glaze Over All And Highlight
3. Wash Coat
2. Stain Over All
1. Equalizer

Furniture lines require an investment of millions of dollars to deliver the most consistent, efficient and trend-right designs possible in modern furniture advanced manufacturing.

### Did You Know?

*A finishing line can be up to, and over one mile long, with some lines having over 100 craftsmen to complete the process.*



## Rotary Slicing

Rotary slicing is a **less expensive** process than Quarter slicing, Rift slicing and Plain slicing. A log is mounted in a lathe and turned against a blade. Thin slices are peeled from the log in an almost continuous roll. This method produces a variety of patterns as the blade slices through successive growth rings. The grain pattern is inconsistent making the leaves more difficult to match.

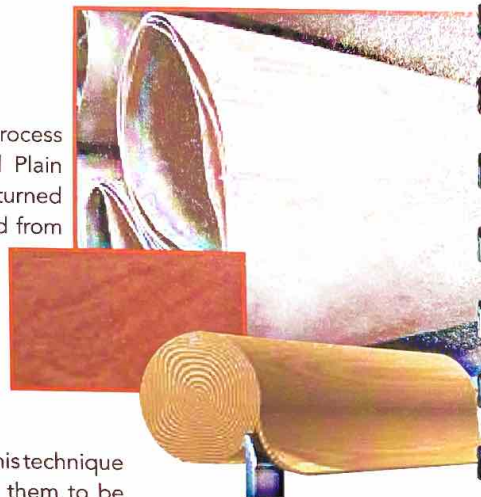
Some wood species are rotary cut. This technique slices the wood into leaves, allowing them to be sequenced much like plain-sliced veneers.

**Half Round Slicing** is a variation on rotary slicing and is sometimes used on smaller logs. The cut angle is similar to plane or flat slicing, providing a similar grain pattern and resulting in wider leaves.

## Quarter Slicing

Quarter Slicing is a **more expensive** process. As the name implies, the log is sliced into quarters before slicing the veneer. The knife slices through the quartered log at approximately a right angle to the growth rings.

The resulting grain pattern is typically straighter in most wood species. In some materials, such as Oak, quarter slicing produces a unique "flake" pattern which is created when the knife bisects radial tubules in the log structure -- called Medullary Rays. Quarter slicing, Rift



slicing and Plane slicing are more expensive processes than Rotary slicing.

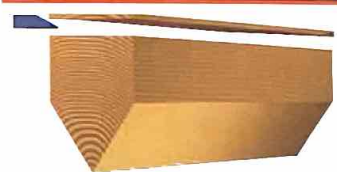
## Rift Slicing

Rift Slicing or cutting is a **more expensive** process and is often used with Oak when the "flake" or Medullary Rays are not desired. This is achieved by slicing the quartered log at an angle to the growth rings. The process involves placing the quartered log in a lathe and adjusting the blade angle to obtain a straight rift grain pattern.

## Plane Slicing

Plane Slicing or flat sliced veneers are made by sawing the log parallel to the center or cut line. Leaf widths vary by the distance from the center and are wider than quartered or rift cut veneers.

The grain pattern produced is commonly referred to as "cathedral" or "flame" shaped.



**CREDITS** - Information supplied in this section was supplied by the Composite Panel Association  
[www.compositepanel.org](http://www.compositepanel.org) and Surface And Panel [www.surfaceandpanel.com](http://www.surfaceandpanel.com)



## Running Match

Running Matching is non-symmetrical in appearance on any single door face. Veneer pieces of unequal width are common. Each face is assembled from as many veneer pieces as necessary.

## End Matching

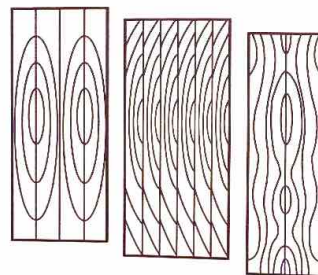
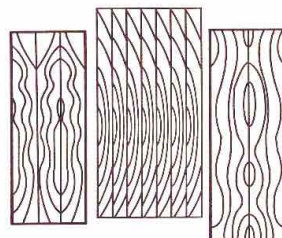
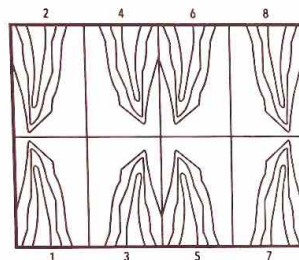
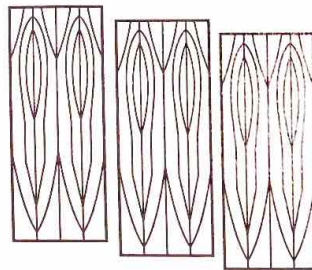
End matching involves the process where both sides of the board, or leaves of a veneer, are book-matched and then flipped to create a four-piece end match. This process allows for and accentuates the grains and irregularities of the finished item. This is often used with tongue and groove joinery.

## Balance Matching

Balance Matching has a symmetrical appearance. Each face is assembled from an even or odd number of pieces of uniform width before trimming. This match reduces veneer yield.

## Center Matching

Center Balance Matching is symmetrical in appearance with each face assembled from an even number of veneer pieces of uniform width before trimming. Thus, there is a veneer joint in the center of the panel. This match further reduces veneer yield.



## Book Match

Alternating pieces of veneer are flipped over so they face each other as do the pages within a book. This creates a pleasing, symmetrical pattern.

## Slip Match

Veneer slices are joined in sequence without flipping the pattern. If the grain is straight, the joints will not be obvious.

## Piece Match

Veneer is matched by color but not by grain pattern.

## Random Match

Random matching is just what it sounds like. Usually done with lower grades of veneer, the leaves may be of varying width, colors and grain.

## Veneer Butt Match

A process where the leaf is spliced together with another piece to extend the length of the veneer.



*The information on composite wood panels and decorative surfaces provided in this manual was derived from materials provided by the Composite Panel Association. For more information on these materials, please go to their website at [www.compositepanel.org](http://www.compositepanel.org).*





## Laminates

Ashley Furniture uses two types of Decorative Architectural Laminate materials; Paper and Vinyl. The Vinyl can be 2D or 3D depending upon the application.

Laminates are man-made and deliver a consistent look and finish. They are normally used on particle board or fiberboards (Engineered Woods) giving a good looking and resistant surface for use for furniture, decoration panels and flooring.

A laminate consists of a single or multiple layers, each having its own distinct function. **Laminates are a cost effective and lightweight alternative to using solid wood components while providing similar aesthetics and a consistent finish.**





■ **ASHLEY'S BRISLEY BED**  
- TFL



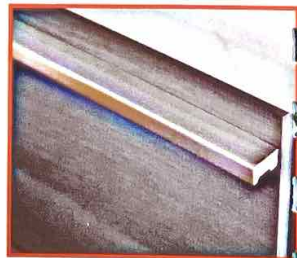
## Thermally Fused Laminate - (TFL)

TFL is a widely used material with applications in a variety of industries for decorative purposes. Thermally Fused Laminate (TFL) panels, once known as Thermally Fused Melamine or TFM, is made by fusing a resin-impregnated sheet of décor paper directly to a substrate. Heat and pressure activate the resin in the saturated TFL panel sheet, creating a cross-linked bond with the substrate. This effectively seals the substrate. Particle board and MDF are ideal substrates for TFL because they are consistent, uniform in strength and free of defects.

## Film Overlays

The last layers are a Decorative Architectural Laminate covered with an overlay. The lamination materials are covered with an inert resin, often melamine, which is cured to form a hard composite with the structure of the overlay. The laminates may also have a lining on the back side of laminating kraft to compensate for the tension created by the top side lamination.

Designers can also use film overlays to customize shapes and incorporate punch-outs, logos and concave/convex surfaces. These films are available in solid colors or printed designs. The films used in 3DL and 2DL are thermoplastic,



■ **ASHLEY'S FOXVALE NIGHTSTAND**  
- 3DL

which means they soften when heated to take on the shape of their substrate and return to a firm state when sufficiently cooled. This allows very decorative surface patterns to be adhered with precision to intricately or ornately designed material.

3D laminates add extra resilience to furniture as the materials are resistant to chipping, cracking or breaking — making them a popular choice for retail store fixtures. In addition, their application seals the core panel substrate from bacteria and moisture, making them an increasingly popular choice in health care settings for overbed tray tables, furniture, and cabinetry.

Due to their ability to wrap around custom shapes, edges and contoured surfaces, designers often specify 3DL materials for Point of Purchase (POP) displays, commercial hospitality components, office furniture and door/drawer fronts for all uses of cabinetry.

## Decorative Foils & Lightweight Decor

Decorative foils are generally pre-impregnated with a blend of resins during the laminate manufacturing process, or post-impregnated after the material is fully cured. Decorative foils weigh between 40 and 200 grams/m<sup>2</sup> untreated. During the impregnation process, the cellulose laminates typically gain between 20 and 50 percent of their base weight.

Those between 100 and 200 grams are dubbed specialty laminates and are more likely than lighter weight varieties to be used for exposed decorative surfaces. The impregnated foils are bonded with an adhesive system to a substrate such as MDF or particle board.

Decorative foils are considered an intermediate-range overlay and are also called impregnated laminates. Factors such as quantity, method and type of impregnation, as well as the type of adhesive system and substrate will have a direct effect on the finished product. These qualities are demonstrated in cutting and machining performance. Although impregnated laminates do not require a topcoat to be considered a foil, most foils receive a finished topcoat for increased durability and scratch resistance.



## Light Weight Laminates

Light basis weight laminates range in weight from 23 - 60+ grams. The material may contain acrylic, polyester or other resins added during the production process to improve the internal bond strength. This architectural laminate is then printed and top-coated with polyurethane, polyester or acrylic — or a combination thereof — for increased durability and performance.

Light basis weight laminates can be printed with excellent quality and high-fidelity patterns. Optional chemical, optical or gloss-matte embossing of these materials enhances the realism of woodgrain and natural patterns. Light basis weight architectural laminates have long been common in higher levels of engineering and are widely used in cabinets, store fixtures, paneling, shelving, closet systems, RTA and home office furniture. Standard grade architectural laminates contain a lower amount of resin in the base material and offer an economical overlay for use on general surface applications.

## High-Pressure Laminates

High-Pressure Laminate or HPL is the direct descendant of the original plastic laminate. It is one of the most durable decorative surface materials and is available with special performance properties including chemical, fire and wear resistance. Special grades of HPL can be post-formed around curved edges by application of heat and restraint. HPL is laminated to a panel utilizing a variety of adhesives. Particle board or MDF are the preferred substrates because they provide a stable, durable, consistent and economical foundation.

Due to its durability, HPL is a common choice for horizontal surfaces including flooring, countertops, and desktops. It also performs well in horizontal and vertical applications for high traffic settings such as hospitality, office furniture, health care, retail casework, commercial interiors, and educational facilities.

A relatively new development in HPL technology is Double Belt Press (DBP) to produce Continuous Pressed Laminate (CPL). CPL is a decorative paper that is impregnated with resins and fused under heat and high pressure with resin-

*Usage: Tabletops,  
Countertops, Furniture,  
Cabinetry, Caseworks  
and Flooring.*

impregnated backer(s). Laminate properties are like standard HPL and typical thickness range is .4 mm to 1mm.

CPL is available in desired sheet lengths or continuous rolls. Flexible CPL is a decorative paper that is impregnated with flexible thermosetting resins and fused under heat and high pressure with resin-impregnated backer(s). This engineered CPL offers a unique range of formable decorative laminates which are suitable for profile wrapping and edge banding applications. Common thickness range is .2 mm through .4 mm. Surface properties are similar to vertical grade HPL and are used significantly to complement HPL and TFL laminates.

## Adhesives

Materials have been bonded to each other for centuries, creating new substances and an endless variety of materials. Long before sophisticated chemistry provided moisture curing polyurethane reactive adhesives, the Egyptians created and used casein (*yes, from milk*) adhesives. For thousands of years, musical instrument makers and artists used casein adhesives, which are still used today as an excellent and environmentally sound adhesive for woodworking.

Polyvinyl Acetate (PVA), also known as "white glue," is a standard for woodworkers, along with aliphatic resin emulsions, commonly known as "yellow glue," the latter having a little more initial grip than white glue. Alternative glues that may be used include UREA, PUD, PUR and Epoxy.

Both white and yellow glue have excellent bonds and are used extensively in a variety of woodworking applications. Adhesives used in modern panel processing are highly engineered for almost any application. Specific requirements — temperature, pressure, dry time, moisture resistant, bonding of dissimilar materials, emissions, interior or exterior use—are all used by today's advanced adhesive suppliers. Engineering a solution for complex requirements is what they do best.

All seating elements have similar construction techniques, even though the materials utilized may be different from each manufacturer. Dining room chairs and box seat chairs share common construction elements. In addition, alternative adhesives are also used for specific applications to include Epoxy, Vinyl Acetate, Urea, and Polyurethane .



## Cast Polyurethane

A polyurethane (PUR and PU) is polymer composed of a chain of organic units joined by carbamate (urethane) links. Polyurethane polymers are formed by combining two bi - or higher functional monomers. One contains two or more isocyanate functional groups (with formula – N=C=O) and the other contains two or more hydroxyl groups (with formula – OH).

This combining process, sometimes called condensation, typically requires the presence of a catalyst. More complicated monomers are also used.

Polyurethanes are used in the manufacture of flexible, high-resilience foam seating; rigid foam insulation panels; microcellular foam seals and gaskets; durable elastomeric wheels and tires; automotive suspension bushings; electrical potting compounds; high performance adhesives; surface coatings and surface sealants; synthetic fibers (e.g., Spandex); carpet underlay; and hard-plastic parts (e.g., for electronic instruments). Polyurethane is also used for the manufacture of hoses and skateboard wheels as it combines the best properties of both rubber and plastic.

### Benefits Of Polyurethane VS. Solid Wood

- Polyurethane gives great detail options and is very durable
- The surface does not crack or split
- This lighter product, easier for delivery and set-up

**ASHLEY'S NORTH SHORE  
POSTER BED WITH CANOPY**



**THE MASTER COPY OF  
THE PART IS CARVED**



**AFTER THE PART IS CARVED, THE  
DESIGN IS INJECTED INTO A "CAST"  
TO BE MANUFACTURED**



**THE PARTS ARE THEN SANDED AND STAINED  
TO CREATE THE FINISHED PRODUCT**

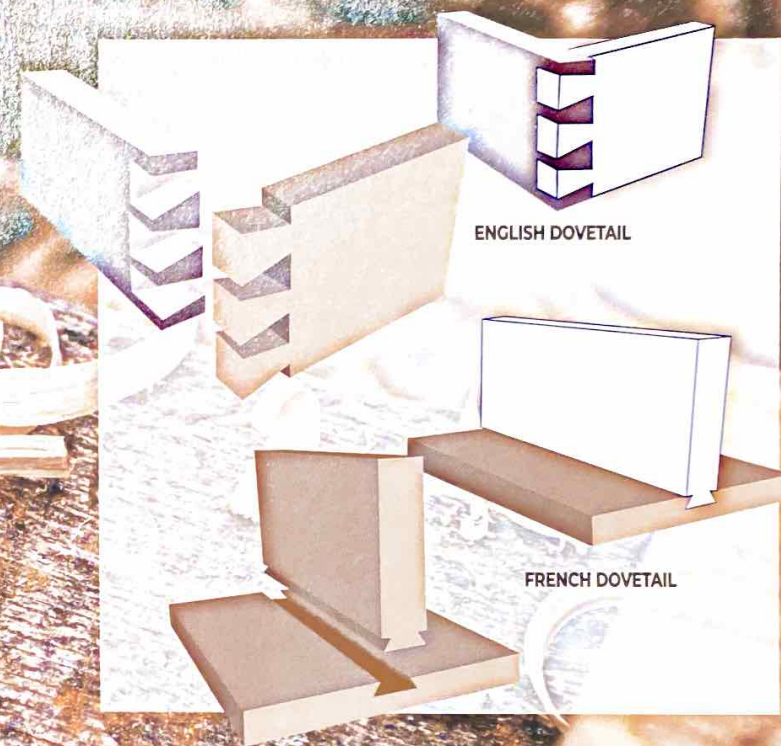


## How Furniture Is Made Today

During the 17th century, furniture makers relied on two styles to design and create their furniture.

The first involved “joining” straight wood together that had been shaped by a variety of ways using axes, saws, and planes to create a smooth and consistent look. These craftsmen also shaped their furniture designs with chisels and other tools while they “spun” or “turned” the wood on a lathe, a machine used to spin the item being designed.

Turned chairs were most popular because of the faster speed of creating the parts needed to complete the item. The speed of creation also made furniture more affordable during this period.



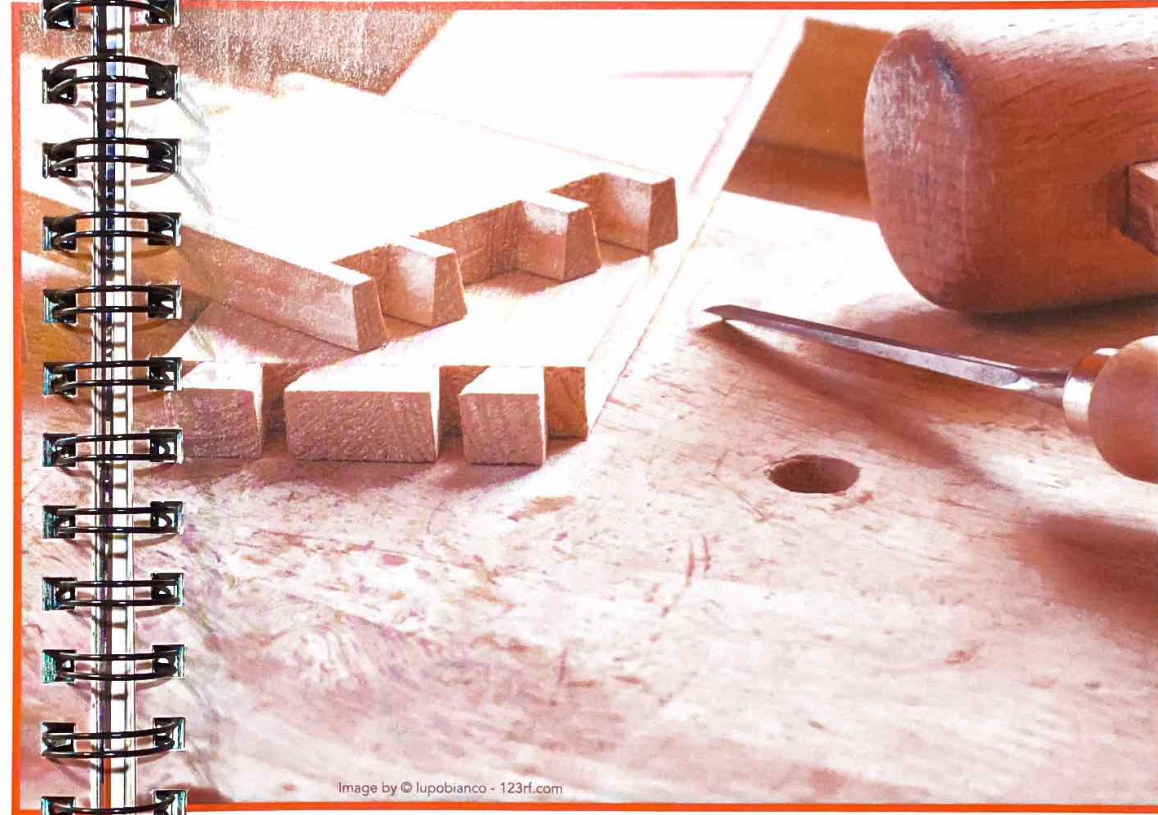


## The Strength Of The English Dovetail

The dovetail joint is still considered one of the strongest of cabinet joints. Many furniture products built today make use of this type of joint, either hidden or exposed reflecting quality craftsmanship and artistic design. Dovetail joints can be simplistic and hidden or featured as a highly decorative design element. Other connective methods included dowels, which were made mostly from maple.

Although screws were introduced early in this century, produced on lathes, they were not highly distributed because of the War of 1812 slowed its use and distribution.

Plywood was invented in the mid-century, but it wasn't highly used until the early 19th century when many companies began to patent its many uses for furniture manufacturing.

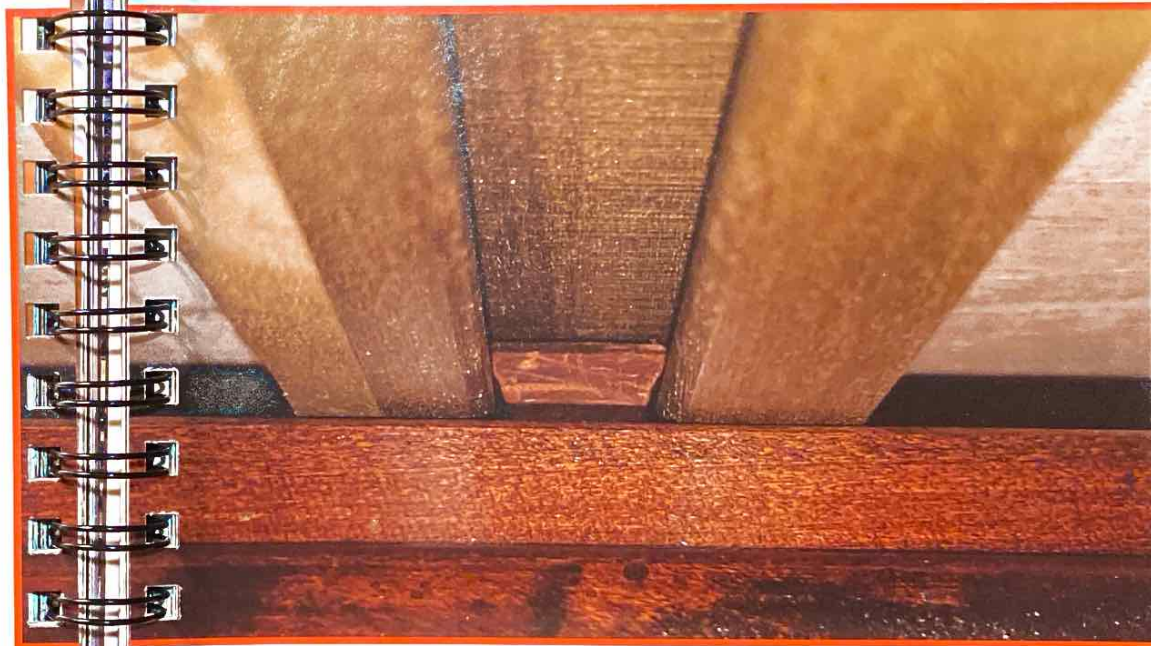




## The Strength Of The French Dovetail

The French dovetail (*a.k.a sliding dovetail*) is very different than the English dovetail and is a very common joinery method used in the construction of specialty furniture designs, especially those designs with curved drawers and more elaborate designs.

The design utilizes a triangular tongue and groove method where the pieces of wood are joined by sliding the pieces of wood together into the pre-cut triangular grooved cuts. This method is very commonly used for the construction of drawers and is a very strong joint, especially when the sections are glued together.



■ THE FRENCH CENTER DRAWER GUIDE IS COMMONLY USED FOR SLIDING DRAWERS BECAUSE OF ITS STRENGTH AND DURABILITY. IT HAS BEEN USED FOR CENTURIES AND IS STILL USED IN SOME INSTANCES TODAY.