

Woodworkers today can still use the design freedom veneer allows to add beauty as well as quality to tables, chests, and other projects. Figured woods such as burlled walnut or bird's-eye maple, exotic woods such as rosewood or ebony, or fine cabinet woods such as walnut or cherry can be used as veneer to create interesting, attractive designs. Fig. 19-2.



Fig. 19-2—Veneer is easily cut into small pieces or into unusual shapes. This makes it ideal for adding interest to a woodworking project.

VENEER

A sheet of veneer is very thin, usually $\frac{1}{32}$ inch thick. The wood material to which it is applied is called the *substrate*. Besides covering solid woods, veneer can be applied to plywood, medium-density fiberboard (MDF), or particle-board. Veneer not only makes the surface more attractive, it also enhances strength.

Veneer has some advantages over solid wood. It doesn't swell or shrink as humidity increases or decreases. It doesn't cup or warp like ordinary boards. You don't have to worry about joints coming apart. Veneer will remain flat even when covering a wide area.

Probably the most important thing about veneer, though, is that good wood is used efficiently. Veneer sliced from an average size log can cover up to forty times more area than boards cut from a log the same size.

Cutting Veneer

Only the best trees are chosen to be made into veneer. The trunks should be long, straight, and free of knots. Of course, this wood is generally more expensive than wood from more ordinary trees. Veneer is cut using either a rotary method or a flat method. Fig. 19-3.

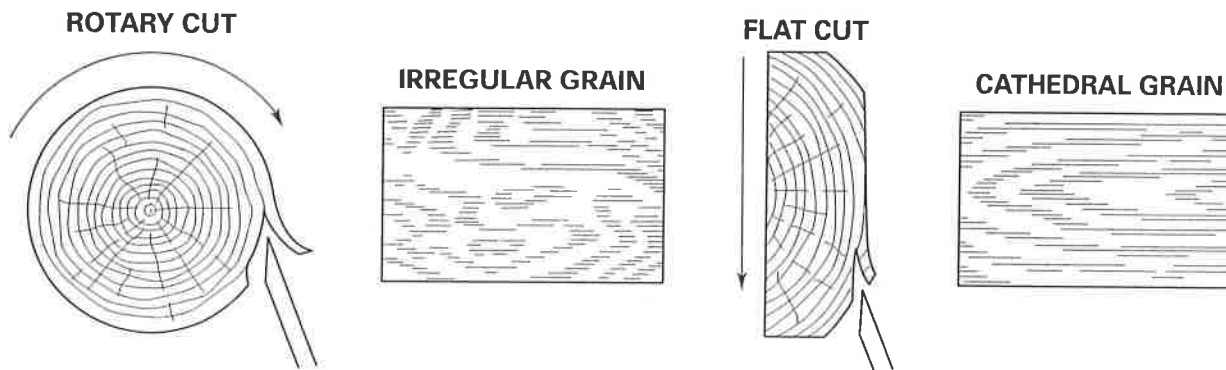


Fig. 19-3—Methods of cutting veneers from a log.

Rotary Cutting Method

The **rotary cutting method** is the faster of the two. A log is mounted in a huge lathe and turned against a blade. A continuous sheet of veneer as wide as the log is long is cut as the log is rotated.

Rotary-cut veneers are generally less attractive and less expensive than veneers cut by the flat method. The grain pattern is spread out and irregular. These veneers are most useful when covering large areas.

Flat Cutting Method

In the **flat cutting method**, a log is clamped into a carrier. The log is moved back and forth across a blade and cut into slices. Most veneers cut by this method are narrow. No slice is wider than the diameter of the log.

All slices from one log are kept in order in bundles called **flitches**, or books. The color and grain pattern of neighboring slices match each other closely. Keeping them together is helpful to the woodworker when creating designs.

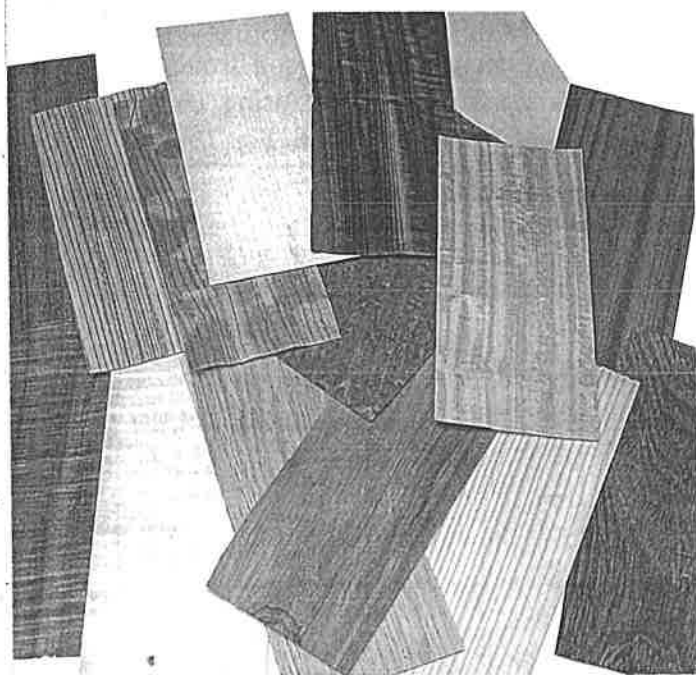


Fig. 19-4—These 18 × 6-inch pieces of veneer are typical of those available for small projects.

The flat cutting method is preferred for furniture veneers. Grain patterns of flat-cut veneers are more clearly defined and attractive than those of rotary-cut veneers, and they match up better in design patterns.

Veneer Sizes

Most veneers are $\frac{1}{8}$ inch thick. The normal flitch is about 12 to 14 inches wide and 16 feet long. However, veneers are also available in standard sizes such as 18 × 24 inches, 18 × 6 inches, and 24 × 48 inches. These sizes are designed specifically for veneering small projects. Fig. 19-4.

Facts about Wood

An Ancient Art—Veneers were used to decorate furniture by the ancient Egyptians as early as 3100 b.c.e. Later, the Romans adopted the technique to create many beautiful pieces. Over the centuries, however, the popularity of veneers declined. Then, around 1400, veneering was rediscovered. By 1850, a great variety of decorated furniture was being produced. As new manufacturing methods and exotic woods became readily available, almost all highly styled furniture was veneered.

Over time, styles changed again. Simpler, sleeker designs and new materials became popular, and veneering declined. Today, however, it is back in favor again. Engineered woods and improved adhesives have helped make veneered furniture more affordable, and many people appreciate the natural beauty of the fine woods.

Veneer edging is available in matching woods. It comes in widths of $\frac{1}{2}$ inch, $\frac{5}{8}$ inch, $\frac{3}{4}$ inch, 1 inch, and 2 inches. Fig. 19-5.

APPLYING VENEER

Veneers are often applied to furniture in design patterns. These patterns are made by some type of *matching*. Fig. 19-6. The pieces of veneer must be cut and glued edge to edge before being applied to the substrate.

For small projects such as jewelry boxes and chess boards, veneering is simpler. The project is built of some relatively inexpensive material

such as plywood, MDF, or an inexpensive solid wood such as pine or poplar. Then it is covered with fine veneer.

Tools

A veneer saw, craft knife, or a very sharp utility knife can be used to cut veneer. Fig. 19-7. A paper cutter or heavy-duty shears can also be used. A veneer roller is best for applying pressure to veneer surfaces. A household iron is useful for certain applications.

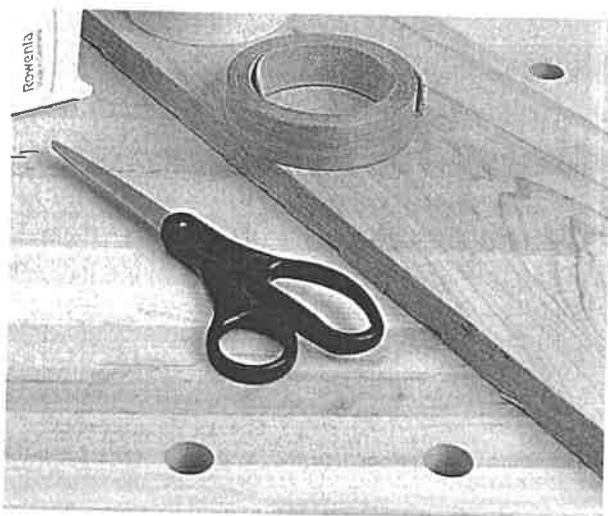


Fig. 19-5—Veneer for edging.



Fig. 19-7—A veneer saw is made specifically for cutting veneer.

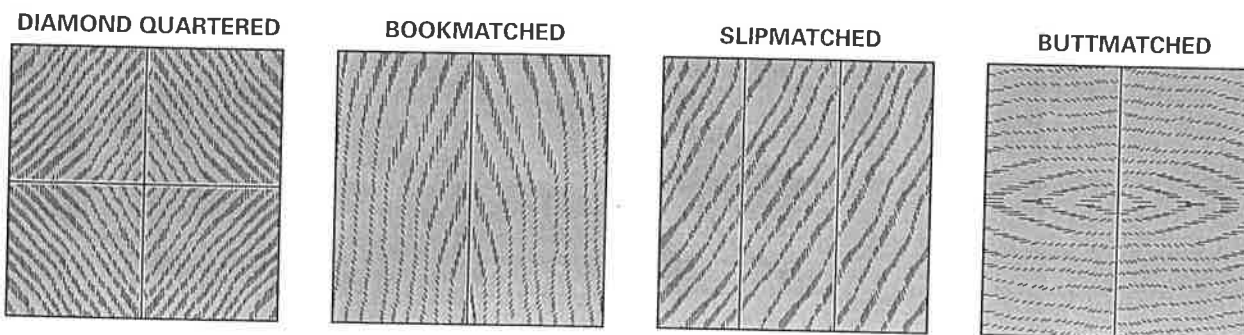


Fig. 19-6—Basic veneer matching effects.

Veneer must often be clamped to apply pressure during the gluing process. For the serious woodworker, the most popular method of applying pressure is with a vacuum press. Fig. 19-8. This system will place as much as 1,500 pounds per square foot of pressure on the veneer when adhering it to the substrate. When the vacuum is turned on, a plastic bag draws up around the material and holds it tightly in place until the glue sets. Fig. 19-9. It applies even pressure over the entire veneer.

Safety First

► Using Tools

- Always wear eye protection when working in the shop.
- Use all tools properly.
- Always take special care with tools that are sharp.
- Take special care with tools or devices that become hot.

SCIENCE Connection

Creating a Partial Vacuum

A true vacuum is a space without matter, including gases. Air is a mixture of gases, so to create a true vacuum, all of the air must be removed from the space.

The vacuum used in a woodworker's vacuum press is actually an efficient partial vacuum. To create the partial vacuum, a pump is used to remove most of the air from inside a heavy plastic bag. As the volume of air inside the bag decreases, the pressure increases proportionately. This relationship between the volume and pressure of gases (at a constant temperature) was first stated by Robert Boyle in 1662. It is now referred to as Boyle's law.

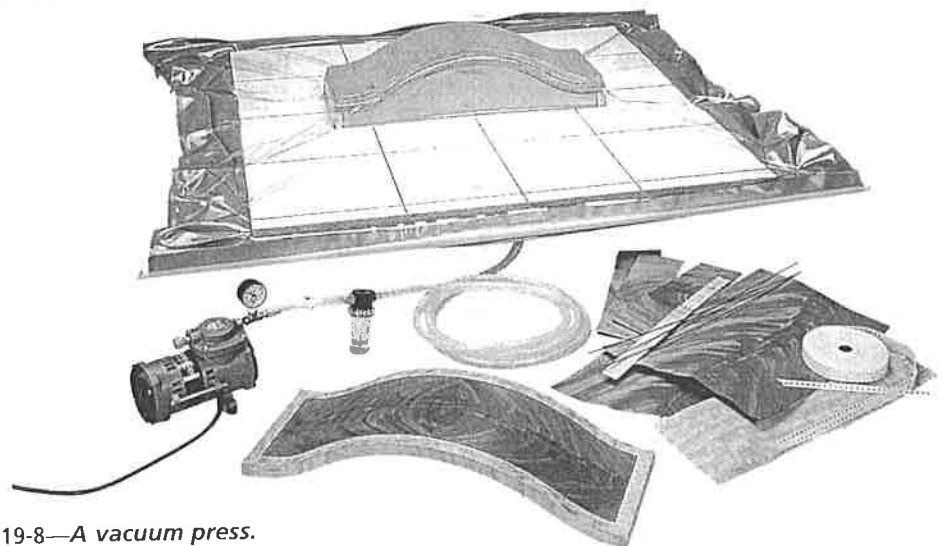


Fig. 19-8—A vacuum press.

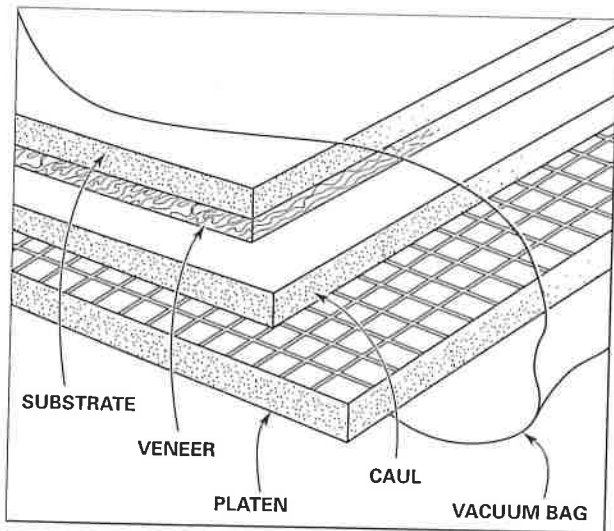


Fig. 19-9—Order of layers inside a vacuum bag.

Safety First

► **Using a Hot Iron**

- Use care and common sense when handling a hot iron. Don't touch the heated portion with your hands, and let the ironed surface cool before touching it.
- When you have finished using the iron, turn it off and set it aside in an upright position on a level surface.

Heat-Adhesive Method

One of the easiest ways to apply veneer is with white or yellow glue. The glue is applied to the veneer and substrate and allowed to dry. Then the veneer is put in place and pressed with a hot household iron.

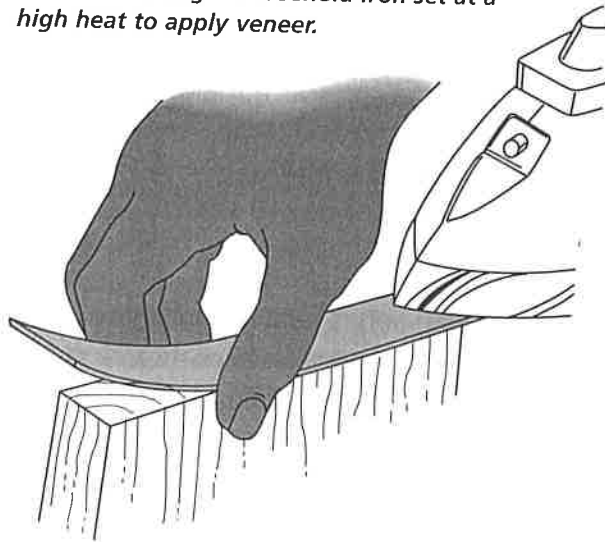
In making small projects, the main advantage of using the heat-adhesive method is that the pieces can be cut and fitted for a design after adhesive is applied. Also, a design can be put together piece by piece, because the veneer will not adhere until heat is applied.

Heat-Adhesive Procedure

Apply the glue by brushing it on both surfaces. To make it spread more easily, you may want to thin it somewhat with water. The glue should have the consistency of heavy cream. Usually two coats are enough. Let it dry.

Place the veneer on the surface and align it. Use a regular household iron set at a high heat. Starting at one corner, move the iron slowly over the veneer. Fig. 19-10. The heat must penetrate the veneer to liquefy the adhesive so it will bond. Cover the surface with a very smooth

Fig. 19-10—Using a household iron set at a high heat to apply veneer.



block of wood to hold the veneer in place while the glue sets. If more pressure is needed, clamp the wood in place. Be sure the pressure is applied evenly over the entire glued area.

After the glue has set, trim any excess veneer at sharp right angles to the edge. Make sure that the edge is square, smooth, and free of sawdust. Then apply the edging. Methods of edging are discussed later in this chapter.

Safety First

► Using Cutting Tools

- Always take special care with tools that are sharp.
- Cut down and away from your body.

Using Contact Cement

Contact cement works well for bonding veneer to a substrate. Cut sheets of veneer for each major surface of the project. Each sheet should be about $\frac{1}{4}$ inch larger than the surface on all sides. Coat the surface of the project and one surface of the veneer with contact cement. Brush thoroughly. Allow it to dry about 30 minutes or until the gloss is gone.

Hold the veneer above the surface and align it. Then lower it in place. Remember that contact cement bonds immediately and permanently once the coated surfaces make contact. The veneer cannot be moved after it touches the surface.

A surface coated with contact cement will not adhere to any surface not coated with contact cement. If a relatively large area is to be covered, use separators to keep the coated surfaces apart while you align the veneer. Use dowels or sticks as separators. Lay them lightly across the coated surface of the project and

place the veneer on top. When you have the alignment you want, remove one separator at a time and press the veneer to the surface.

Apply pressure to the surface with a small roller. Place a block of softwood over the veneer and strike with a hammer until the veneer is in complete contact with the surface.

Finish the edges by first trimming excess material. Sand edges lightly so they are square. Remove all sawdust before applying the edging.

APPLYING VENEER EDGING

Veneer edging is usually applied last. Three types of veneer edging are available: plain, heat-adhesive, and pressure-adhesive.

Plain edging is simply attached with adhesive. White glue, yellow glue, or contact cement can be used. If you use contact cement, remember to let the coated surfaces dry before applying the edging.

If *heat-adhesive edging* (veneer tape) is used, remove the paper liner and apply the veneer tape to the edge with hand pressure. Press a hot iron on the tape until the heat penetrates the veneer, activating the adhesive. Follow directly behind the iron with a block of wood to hold the edging in place until the adhesive cools and sets.

Pressure-adhesive edging has a backing of pressure-sensitive adhesive covered with paper. To glue this edging, strip the cover paper away and fasten the edging in place.



CHAPTER 19

Veneering

Matching

Directions: On the line next to each term, write the letter of the correct description.

- | | |
|-----------------------------------|---|
| _____ 1. veneering | A. a bundle of the slices from one log |
| _____ 2. flitch | B. edging that is simply attached with an adhesive such as white glue |
| _____ 3. substrate | C. the wood material to which veneer is applied |
| _____ 4. plain edging | D. the process of applying a thin layer of fine wood to the surface of a wood of lesser quality |
| _____ 5. heat-adhesive edging | E. edging that is applied by peeling back the cover paper and fastening the edging in place |
| _____ 6. pressure-adhesive edging | F. adhesive-backed edging that can be applied with hand pressure, followed by heat to activate the adhesive |

Completion

Directions: On the line to the left of each sentence, write the word or phrase that correctly completes the sentence or answers the question.

- _____ 7. Fig. 19-1 shows the ___ method of cutting veneer.
- _____ 8. Fig. 19-2 shows the ___ method of cutting veneer.
- _____ 9. Most veneers are ___ inch thick.
- _____ 10. A(n) ___ saw, craft knife, or utility knife can be used to cut veneer.
- _____ 11. Serious woodworkers often use a(n) ___ to apply pressure to veneer during the gluing process. *(two words)*
- _____ 12. Veneer can be applied to a substrate using white or yellow glue or ___. *(two words)*
- _____ 13. On some veneers, a(n) ___ provides the heat necessary to bond the adhesive to the substrate and veneer.

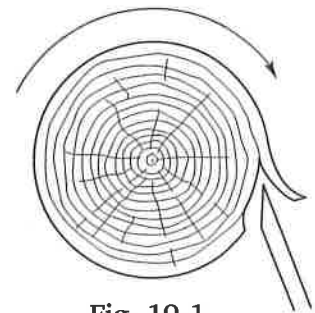


Fig. 19-1

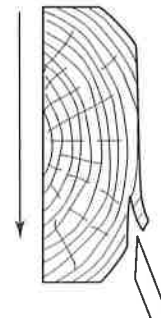


Fig. 19-2

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True or False

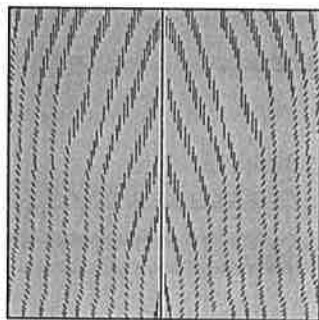
Directions: Read each statement carefully. If the statement is true, write **True** in the blank to the left of that numbered item. If the statement is false, write **False** in the blank.

- _____ 14. One of the most important things about using veneer instead of solid wood is that good wood is used more efficiently.
- _____ 15. Flat-cut veneers are generally less attractive than rotary-cut veneers because the grain pattern is spread out and irregular.
- _____ 16. A surface that has been coated with contact cement will not adhere to any other surface that has not been coated with contact cement.

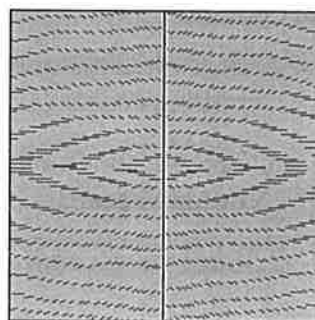
Matching

Directions: Identify the type of veneer matching used in each of the illustrations in Fig. 19-3. On the line next to each type of matching, write the letter from the illustration that shows that type.

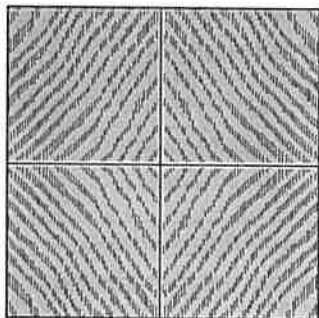
- _____ 17. diamond quartered
- _____ 18. bookmatched
- _____ 19. slipmatched
- _____ 20. buttmatched



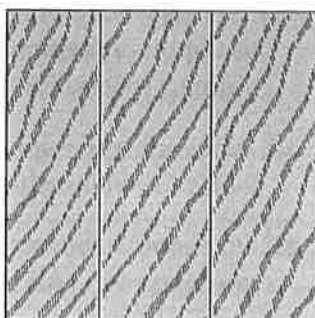
A



B



C



D

Fig. 19-1