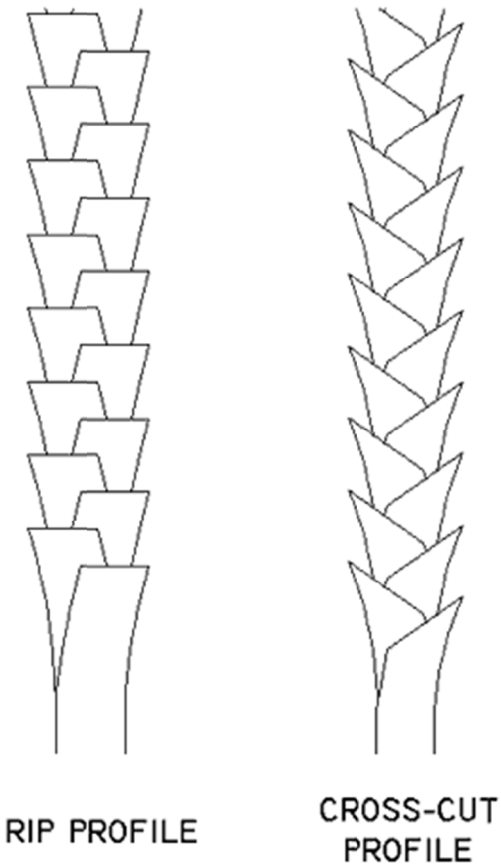
Processes – Construction Techniques

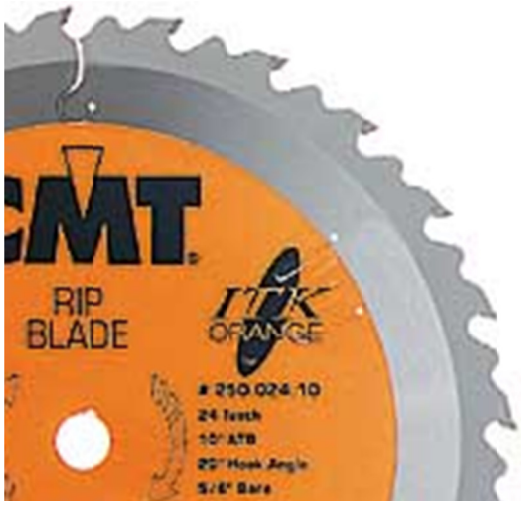
Sawing

Sawing is the process of cutting material to size. With timber and some manufactured boards cutting is done either across the grain, called cross-cutting; or with the grain, called ripping.



Sawing can be done by hand using a variety of different saw types. The teeth on a saw blade can be sharpened and set for either cross-cutting or ripping.

Machines can also be used to cut timber, and like handsaws, the teeth can be arranged for either cross-cutting or ripping. The number of teeth is greater for cross-cutting than it is for ripping and the grinding angles of the teeth are also different. Combination blades are also available as a compromise between the two types, as well as blades designed for cutting specific types of manufactured boards



Drilling

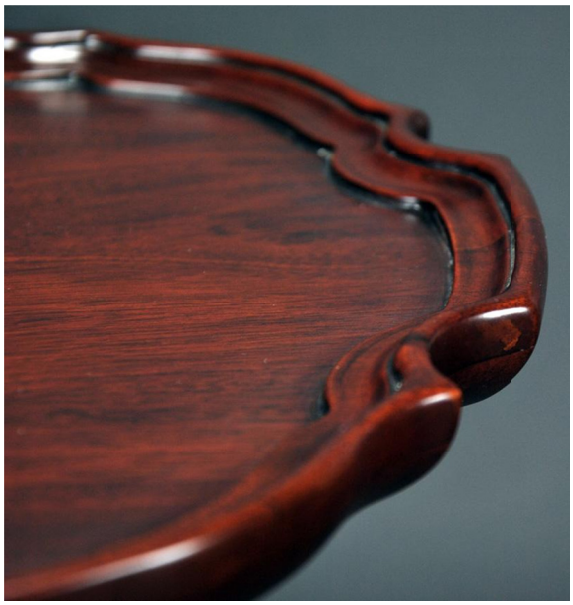
Drilling is the process of removing material to produce round holes. Like sawing, drilling can be done by hand or with the use of machines.

A wide variety of drill bits are available for different materials and size holes.

Hand tools used to drill include braces and hand drills. Machines used include drill presses (bench or pedestal drills), power drills and cordless drills.

Edge Treatments

Edge treatments are done to decorate a piece of timber around its edge or to cover the edge of a manufactured board by attaching a piece of solid timber or veneer.



To decorate the edge of solid timber a router and router bits are usually used to remove material, leaving a new shape on the edge. This can also be done by hand using a number of different planes. Other methods can include creating a pie crust edge (shown right) by attaching a moulding around the edge of a panel.

It is very important to treat the edges of manufactured boards because they are generally very unattractive. The addition of solid timber or veneer gives the appearance of the whole panel being made from solid timber and an overall more aesthetically pleasing look.

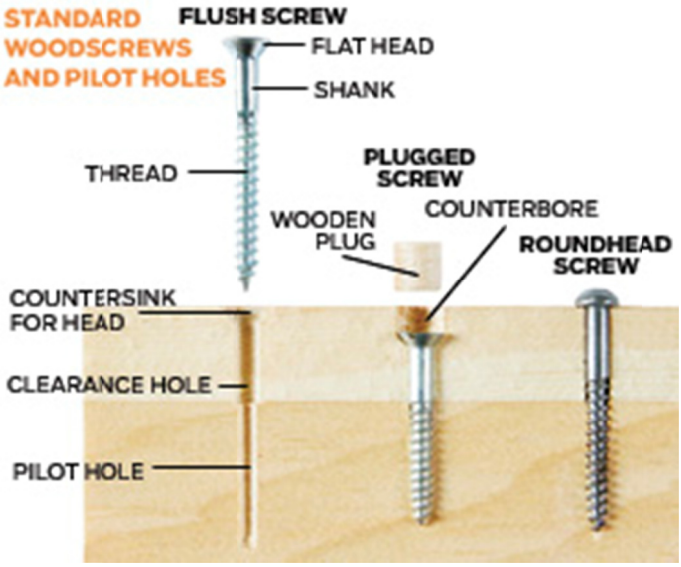
Nailing and screwing

Nailing and screwing timber are methods of joining pieces using mechanical fasteners.

Nails are generally straight lengths of wire with a flat or bulbous end and a sharp, pointed end. The bulbous end is hit with a hammer, driving the sharp end into the pieces. Nailing can be done by hand using a hammer and nail punch, or by machine using a nail gun.

Screws use a helix or spiral around their shank to pull themselves into the pieces being joined. The heads can have a range of shapes and use different types of driving bits to screw them into the timber. Screws can be used with hand tools in the form of screwdrivers, or with machines such as powered screwdrivers or cordless drills/drivers.

With both joining techniques it is often necessary to drill pilot holes to prevent the timber from splitting. Screwing timber will also require a clearance hole to be drilled and countersinking or counter boring for the head to fit properly.



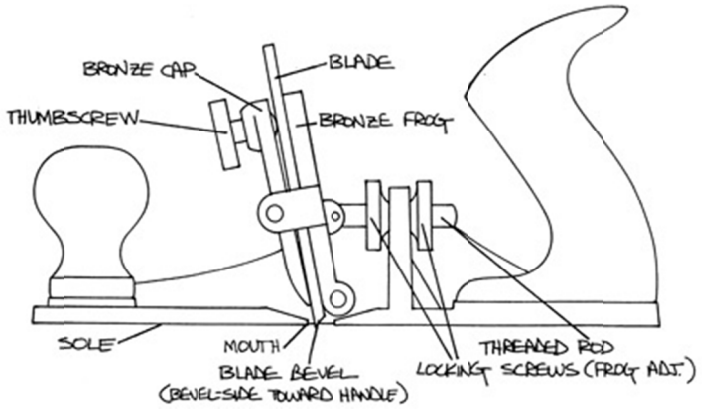
Sanding

Sanding is an abrasive process used to smooth the surface of timber. It is usually done before a finish is applied and then between each coat is laid down. Sanding should never be done on any joints or faces that are to be joined as it is too easy to round the faces. Any surface can be sanded, no matter how intricate the shape, it may just mean that some sections of a project are much more difficult to sand than others.

Hand sanding is generally done by wrapping garnet paper around a suitable

stock. For flat surfaces we use a cork or sanding block. For curved surfaces we may make our own sanding block to match the curve and attach the garnet paper to that, or we could use a foam block that will deform to the profile being sanded. Intricate shapes may be sanded using only the garnet paper.

A wide range of sanding machines are available, both in portable and fixed varieties. Portable sanders include orbital sanders, random orbit sanders, detail sanders, hand held linishers, and belt sanders. Fixed machines for sanding include wide belt sanders, drum sanders, linishers, disc sanders and stroke sanders.

Scraping

This is a hand process. It is especially useful on timbers with irregular or 'cranky' grain where sanding will leave scratches because the grain direction changes quickly and randomly in the timber. Scraping can be done using a flat or crank neck cabinet scraper or cabinet makers scraping planes. When done using a scraper plane the process can be fairly simple. When done using a flat or crank neck scraper you often need to have a rest if you aren't used to it as your thumbs become very sore from bending the scraper. Scraper planes have a blade that is ground to shape using a grinder. Hand held scrapers need a burr to be formed by burnishing the edge using a hard, round rod.