Hardwoods and Softwoods

Broadleaf trees may be deciduous (lose their leaves in the winter) or evergreen. The term 'broad' means broad in comparison to the length of the leaf. The timber from broad-leaved trees is known as hardwood. These trees which are from the temperate and tropical zones are slow-growing and consequently usually dense in structure. Oak, ash, beech, mahogany, elm, walnut, birch and maple are examples.

Conifers are usually evergreen. Their leaves are needle-like, and the trees are found mostly in the colder regions of the earth where the summers are short and consequently the trees have adapted themselves to quick growth. The timber is therefore usually softer and easy to work. The timber from conifers is known as softwood. Douglas fir, parana pine, pitch pine, spruce, Western red cedar and red deal are examples.

Softwoods

Redwood
From Scandinavia, Scotland, Baltic States, West Siberia. Also known as Scots pine, red Baltic pine and red deal. Honey to reddish brown colour with the sapwood lighter in colour and often tinged with blue-grey streaks. It is the most important softwood and is used in large quantities for both inside and outside work. It is the standard wood used for building construction. Fairly strong, easily worked. Obtainable in large sizes and various qualities. Used for rafters, joists, flooring, doors, windows, and all kinds of joinery.

Douglas Fir
From British Columbia. Also known as Columbia pine and Oregon pine, reddish colour. Strong and tough. Fairly easy to work. Obtainable in great lengths. Used for general constructional work, masts, spars, and plywood.

White Deal or Whitewood (spruce)
From Great Britain, Canada, U.S.A. Creamy white colour. Often contains small hard knots and resin pockets. Easy to work. Used for general interior work, including packing-cases.

Parana Pine
From South America. Pale yellowish colour with the heartwood often streaked with red. A reliable timber when properly seasoned. Often free of knots. Used for all kinds of internal joinery.

Yellow Pine
From Canada and North Eastern United States. Also known as white pine. Creamy yellow to straw-brown heartwood with white sapwood. Easily worked. A stable wood. Used for all kinds of interior joinery and pattern making.
Sitka Spruce
From Western Canada and U.S.A. Creamy white to pale brown colour. A good quality spruce. Strong, tough and straight grained. Obtainable in large sizes. Used for all kinds of interior and exterior work. Also used for musical instruments.

Western Red Cedar
From British Columbia. reddish brown colour. Obtainable in large sizes. Very light, soft and straight-grained with a fine silky surface. Contains an aromatic oil which renders it resistant to insect attack. Used for all kinds of joinery, doors, panelling, floors and ceilings, window sashes and shingles for roofing. Especially suitable for outside joinery.

Pitch Pine
From U.S.A. Yellowish brown colour. Very resinous and hence difficult to work. Strong and tough. Fairly heavy. Used for heavy constructional work.

Hardwoods

English Oak

Beech
From Britain and Central Europe. White or pinky brown colour. Strong, tough and close grained. Polishes well. Used for tool handles, mallets, furniture, flooring. Bends well when steamed. Able to withstand wear and shocks.

Ash
From Britain and Europe. Pale fawn coloured. Strong and flexible. Fairly close grained. Easy to work with sharp tools. Finishes well. Used for oars, spade and tool handles, shafts.

Honduras Mahogany
This is the better quality mahogany. It comes from Central and South America and Cuba. reddish brown colour and of even and fine texture. A stable wood. Used for high quality joinery and cabinet-making, boat-building, veneers. Polishes well.

African Mahogany
A cheaper form of mahogany used for a great variety of work, including shop fitting, general cabinet work, veneers. African mahogany includes several types, for example Sapele which is dark red and hard. Gaboon is another and is pink in colour and soft. Utile is another.

Ramin
From Sarawak. Yellowish white colour. Straight grained and reliable. Used for general cabinet work, dowel rods, mouldings.

Agba

African Walnut

Sycamore
From Britain and Europe. White in colour with close and attractive grain. Hard and strong. Used for kitchen furniture, turnery, rollers.
Teak
From Burma and India. Dark brown colour. Hard and strong. An oily wood highly resistant to moisture and acids. Rapidly blunts the tool cutting edges. Used for ships' timbers, bench-tops in science laboratories, and furniture.

Balsa
From Central and South America and the West Indies. Almost white in colour, sometimes with a pinkish tinge. The lightest wood used. Soft and porous. Very elastic. Used for models.

Birch
From Britain, Canada, Europe. Light brown colour with close grain. Very strong and tough. Used for furniture and plywood.

British Elm
From the British Isles. Reddish brown colour. Often has a wild grain formation. Tough and elastic. Used for constructional work, coffins, packing-cases. A durable timber. Polishes well.

Natural Durability of Timber
Some timbers are more resistant to decay and insects than others, due to the natural secretion of preservatives and to the chemical composition of the cell walls. The following are noted for their resistance: Western red cedar and sequoia in the softwoods; teak and oak in the hardwoods.

Man made boards
Plywood
Plywood is made of a number of veneers (laminations) which are glued together (by passing between rollers which are fed with glue), with the grain of each at right angles to its neighbour, and then placed in a press. A variety of timber is used for making plywood: Douglas fir, mahogany, beech, birch, oak, etc. The special advantages of plywood are: 1. It is available in large sheets and thus is possible to cover large areas with uninterrupted surfaces. 2. It has great strength due to the crossing of the grains in the veneers. 3. It has stability, for it does not expand or contract as solid wood does. Plywood is available in various qualities. Water-resisting plywoods with the veneers glued with a resin glue are obtainable.

Rotary cutting of veneers
The log is softened by steaming and placed between centres. It is then slowly rotated whilst a strong sharp knife is fed into the log and thus a continuous sheet of veneer is peeled off. As the sheet of veneer leaves the log, it is cut to size and then passed through a drying machine. Most plywood is made from rotary cut veneers.

Slice-cutting veneers
Rotary cut veneers do not show the beautiful figure of many hardwoods: for example, the figure of the rays in oak would be lost. When it is required to show the natural figure the veneers are slice-cut. The timber is steamed to soften it and then fixed in position. The knife is now passed back and forth cutting the veneers.
**Laminboard**

Laminboard is made up of thin strips of wood glued together and faced with one or more veneers. The strips of wood are less than 12.5 mm wide. Because the core strips are narrow, possible waviness on the surface is reduced if the strips should shrink. It is thus superior to blockboard and battenboard.

**Blockboard**

Blockboard is of similar construction to laminboard but the strips of wood are more than 12.5 mm wide. When the strips of wood are more than 25.5 mm wide it is called battenboard. Blockboard is obtainable from 12.5 mm thick upwards. It is used for making flush doors, furniture and large joinery.

**Hardboard**

Hardboard is made from pulped wood waste mixed with bonding and hardening agents and formed at high temperature in powerful presses. Various grades are obtainable, the cheaper grades being less dense. It is available with different finishes: plastic-faced, reeded finish, veneered, with holes in it (peg board), embossed finish. Several thicknesses can be purchased but the 4 mm. size is usually used.

**Chipboard**

Chipboard is manufactured from wood chips of uniform size bonded together with synthetic glue under great heat and pressure. The boards can be obtained in large sizes (2440X 1220 mm is a common size), and from 6 to 38 mm in thickness. It is available ready sealed for painting, veneered, and plastic faced.

**Laminated Plastics**

Laminated plastics such as Formica are obtainable in sheets in a vast range of colours and patterns and are widely used for table-tops, panelling and all kinds of work where a lasting, durable and attractive surface is required. Laminated plastics are usually cut with a fine-tooth saw such as a tenon saw, but special knives are obtainable which cut them. They can be filed and planed. Impact glue is used to glue them to their background.

**Medium density fibre board (MDF)**

This is made by compressing and gluing together tiny wood particles to form a dense board that is available in a wide range of shapes and cross-sections including mouldings and moulded panels. It is very stable and easily laminated with a thin plastic coating or hardwood veneer. MDF is used extensively for kitchen and workplace furniture.