

# CARPENTRY

Carpentry and Joinery are common terms used with any class or work with wood. Strictly speaking, carpentry deals with all works of a carpentry such as roofs, floors, partitions, etc. of a building, while joinery deals with the making of doors, windows, cupboards, dressers, stairs, and all the interior fittings for a building.

Timber is the basic material used for any class of wood working. The term 'timber' is applied to the trees which provide us with wood. Wood is one of the most valuable biodegradable raw materials of industry and daily uses.

## ADVANTAGES OF TIMBER

Timber carries a number of advantages over other materials used in construction work. A few important ones are given below:

1. It is very easy to be worked on with tools to give it a desired shape and size.
2. Structural connections and joints can be easily made in timber.
3. It is lighter than most of the materials used in construction work and at the same time stronger too.
4. In framed structures it suits equally well to both load bearing and non load bearing members.
5. In timber work the cost of material as well as construction both are minimized as compared to the other materials of similar use.
6. It has a fairly good resale value in case it is not needed.
7. It responds very well to polishing and painting etc.
8. It suits very favourably to doors, windows, cabinet work, furniture and decorative designs and fittings.

According to the manner of growth the timber trees can be broadly classified as:

1. Exogenous or Outward growing.
2. Endogenous or Inward growing.

Exogenous trees are those which grow outward from the centre adding almost concentric layers of fresh wood every year, known as annual rings. It is this variety of trees which yields the timber suitable for building and other engineering uses. The exogenous trees are further classified as;

- (i) Conifers or evergreen trees.
- (ii) Deciduous or broad leaf trees.

The conifers give soft woods and the deciduous class hard woods. Some common examples of hard woods are Sal, Teak, Shisham, Oak, Beach, Ash, Ebony, Mango, Neem and Babid (Babool), etc. against this, the soft woods include Kail, Pine, Deodar, Chir, Walnut, Semal, Toon and Spruce, etc.

The main characteristics of these two types of woods are given in Table 1 below:

**Table 1 Characteristics of soft and hard woods.**

<i>Soft wood</i>	<i>Hard wood</i>
1. It is a resinous wood having a fragrant smell and regular texture	It is a non-resinous wood containing a fairly good amount of acid.
2. It carries straight fibers and fine texture.	Its fibres are quite close and compact.
3. It is light in colour	It is dark in colour.
4. It is light in weight	It is heavier.
5. The annual rings are quite distinct in it.	The annual rings are not distinct in it.
6. It has a good tensile resistance but is weak across the fibres.	It has both good tensile as well shear resistance.
7. It gets splitted quickly	It does not split quickly.
8. It is relatively weaker and less durable.	It is stronger and more durable.
9. It may catch fire soon and cannot withstand high temperatures.	It has an added advantage in its refractoriness.
10. It is easy to be worked.	It is difficult to be worked.

## SELECTION OF TIMBER

The main factors which influence the selection of timber for a particular use are the following:

1. Durability
2. Workability
3. Weight.
4. Hardness.
5. Cohesiveness.
6. Elasticity
7. Type of texture
8. Type of grains.
9. Resistance to fire.
10. Resistance to various stresses.
11. Ability to retain shape
12. Suitability for polishing

## SEASONING OF TIMBER

**Object of seasoning.** The main object of seasoning is to reduce the moisture content in the wood to the extent it is desirable so as to make it suitable for various purposes. If this excess or unwanted amount of moisture is not taken out of the wood its presence will render the wood unsuitable due to uneven shrinkage, warping or twisting etc.,

Advantages of seasoning. The main advantages of seasoning the wood are the following:

1. Wood becomes hard.
2. It becomes more durable.
3. Its resistance to shock and stresses are increased.
4. Its workability is improved.
5. Its density is reduced.
6. It does not warp after seasoning.
7. Shrinkage does not occur after seasoning.
8. Defects like twisting, bowing and splitting do not occur.
9. Its ability for taking up polishing and painting is improved.
10. its resistance to fire is increased.

The common defects found in timber can be broadly classified into the following three groups:

- (a) Natural defects or defects due to abnormal growth of the tree.
- (b) Defects occurring during conversion, seasoning or use.
- (c) Defects due to the actions of fungi and insects.

#### **4.9 CARPENTRY TOOLS**

In order to successfully work different forms to accurate shapes and dimensions, the wood-worker must know the use of a large number of tools. The principal types which are manipulated by hand are described and illustrated below :

- |                               |                                   |
|-------------------------------|-----------------------------------|
| 1. Marking & Measuring tools. | 4. Boring tools                   |
| 2. Cutting tools              | 5. Striking tools                 |
| 3. Planning tools             | 6. Holding & miscellaneous tools. |

## CARPENTRY TOOLS

In order to successfully work different forms to accurate shapes and dimensions, the wood-worker must know the use of a large number of tools. The principal types which are manipulated by hand are described and illustrated below :

1. Marking & Measuring tools.
2. Cutting tools
3. Planing tools
4. Boring tools
5. Striking tools
6. Holding & miscellaneous tools.