FAQ's

Define Timber.

The timber denotes wood which is suitable for building or carpentry or various other engineering purposes and it is applied to the trees measuring not less than 600 mm in girth or Circumference of the trunk

What are the two types of trees and what is the difference between them?

The two types of trees present are

- Exogenous trees
- Endogenous trees

The difference in them is as follows

- Exogenous trees - which comprise the great majority of modern trees (all conifers, and all broadleaf trees), grow by the addition of new wood outwards, immediately under the bark.
- Endogenous trees - mainly in the monocotyledons (e.g. palms), grow by addition of new material inwards.

Wood /Timber from Exogenous trees are only fit for use in building construction.

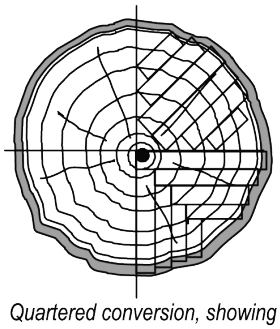
What is conversion of Timber? Explain its process.

Timber conversion is the process where a newly felled tree is converted into workable lumber. There are many different cuts that can be used to convert a downed tree to lumber.

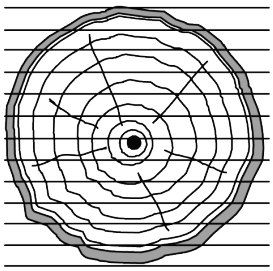
There are two main methods of converting timber:

- Through and through (or Plain or Crown sawn) which produces tangential boards and
- Quarter Sawn which produces radial boards.

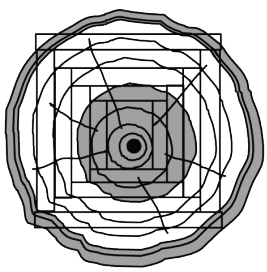
The Quarter sawn is far more expensive because of the need to double (or more) handle the log. There is also more wastage. It is however more decorative and less prone to cup or distort. Note also there are two ways of sawing the quarter.



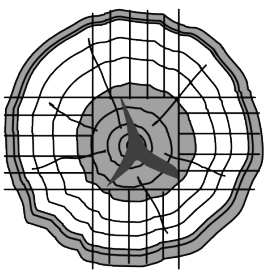
Quartered conversion, showing 2 different ways (radial boards)



Through and through conversion. (tangential and some radial boards)



tangential cuts



boxed heart (usually old oak)

Through and through produces mostly tangentially sawn timber and some quarter sawn stuff. Tangential timber is the most economical to produce because of the relatively less repetitive production methods. It is used extensively in the building industry.
There are other ways but they are all variations of tangential and radial cuts to obtain the best or most economical boards for the use it is to be put. These basic cuts are not always able or need to be, on the exact tangent or radius of the trunk. The cuts, that fall between, crown and quarter are called 'rift' and between 'rift' and 'quarter' are identified as 'figured'. Boxing the heart refers to eliminating the heartwood from the boards that would otherwise produce shakes, juvenile wood or may even be rotten.
Tangential boards (crown, plain or flat sawn) are used extensively for beams and joists. They are stronger when placed correctly edge up with the load in the tangential axis. These type of boards suffer from 'cupping' if not carefully converted, seasoned, and stored properly.
Annual growth rings form an angle less than 45 degrees.
Radial boards (radial, figured or quarter sawn) are typically cut on 'the quarter' and produce a pattern of the medullary rays especially in quartered oak. Such timber is expensive due to the multiple cuts required to convert this board. The radial face of the board is slightly stronger and stiffer than the tangentially face but the cross section and condition of the timber has more effect on strength. Annual growth rings form an angle greater than 45 degrees.
Quarter sawn boards are radial cut from the centre of the tree. It produces the distinctive silver ribbon effect (in oak) across the whole board. Annual growth rings form an angle greater than 45 degrees. True quartered boards producing the best features will have the angle on or very much closer to 90 degrees.

What are the properties of a good timber?
Properties of good timbers are:
Colour: It should be uniform.
Odour: It should be pleasant when cut freshly.
Soundness: A clear ringing sound when struck indicates the timber is good.
Texture: Texture of good timber is fine and even.
Grains: In good timber grains are close.
Density: Higher the density stronger is the timber.
Hardness: Harder timbers are strong and durable.
Warping: Good timbers do not warp under changing environmental conditions.
Toughness: Timber should be capable of resisting shock loads.
Abrasion: Good timbers do not deteriorate due to wear. This property should be looked into, if timber is to be used for flooring.
Strength: Timber should have high strength in bending, shear and direct compression.
Modulus of Elasticity: Timber with higher modulus of elasticity are preferred in construction.
Fire resistance: A good timber should have high resistance to fire.
Permeability: Good timber has low water permeability.
Workability: Timber should be easily workable. It should not clog the saw.
Durability: Good timber is one which is capable of resisting the action of fungi and insects attack
Defects: Good timber is free from defects like dead knots, shakes and cracks.

What is seasoning? Explain the seasoning process of timber.
Seasoning of timber is the process by which moisture content in the timber is reduced to required level. By reducing moisture content, the strength, elasticity and durability properties are developed. A well-seasoned timber has 15% moisture content in it.
Methods of Seasoning of Timber

There are two methods of Seasoning of timber which are explained below

1. Natural seasoning
2. Artificial seasoning

NATURAL SEASONING OF TIMBER

Natural seasoning is the process in which timber is seasoned by subjecting it to the natural elements such as air or water. Natural seasoning may be water seasoning or air seasoning.

1. WATER SEASONING

Water seasoning is the process in which timber is immersed in water flow which helps to remove the sap present in the timber. It will take 2 to 4 weeks of time and after that the timber is allowed to dry. Well-seasoned timber is ready to use.

2. AIR SEASONING

In the process of air seasoning timber logs are arranged in layers in a shed. The arrangement is done by maintaining some gap with the ground. So, platform is built on ground at 300mm height from ground. The logs are arranged in such a way that air is circulated freely between logs.

By the movement of air, the moisture content in timber slowly reduces and seasoning occurs. Even though it is a slow process it will produce well-seasoned timber.

ARTIFICIAL SEASONING OF TIMBER

Natural seasoning gives good results but takes more time. So, artificial seasoning of timber is developed nowadays. By artificial seasoning, timber is seasoned with in 4-5 days. Here also different methods of artificial seasoning are there and they are as follows.

- Chemical seasoning
- Kiln seasoning
- Electrical seasoning

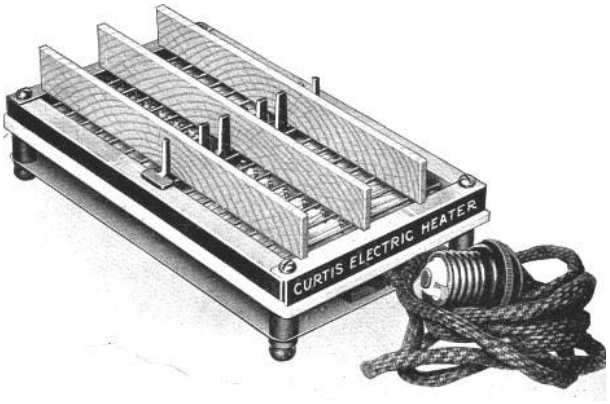
Chemical Seasoning

In case of chemical seasoning, timber is stored in suitable salt solution for some time. The salt solution used has the tendency to absorb water from the timber. So, the moisture content is removed and then timber is allowed to drying. It affects the strength of the timber.

Kiln Seasoning

In this method timber is subjected to hot air in air tight chamber. The hot air circulates in between the timber logs and reduces the moisture content.

The temperature inside the chamber is raised with the help of heating coils. When the required temperature is obtained moisture content and relative humidity gets reduced and timber gets seasoned. Even though it is costly process it will give good results strength wise.



Electrical Seasoning

In the method of electrical seasoning timber is subjected to high frequency alternating currents. The resistance of timber against electricity is measured at every interval of time.

When the required resistance is reached seasoning, process is stopped because resistance of timber increases by reducing moisture content in it. It is also called as rapid seasoning and it is uneconomical.