CONVERSION OF TIMBER:

Conversion is the process of cutting and sawing timber into commercial sizes. The tree trunk or stem is first cut into transportable sizes called logs. At the sawmill, the log is converted (cut) into commercial (marketable) sizes such as boards and planks. The popular methods of conversion are plain-sawn and quarter-sawn.

1. The plain-sawn method: it is also called the through and through method. The log is sawn plank after plank. It is a very cheap method of conversion of timber. It is used extensively in the building industry.

Advantage of Plain Sawing  
i. It is quick and the waste generated is quite few.

Disadvantages of Plain Sawing   
i. Plain sawn timbers are prone to cupping, twisting and bowing.  
ii. Boards from plain sawn do absorb moisture and become distorted with time.

1. The quarter-sawn method: This is the method of splitting log angularly along the grains on the log. It is usually more technical to split wood using this method

Advantages of Quarter Sawing  
i. In quarter sawn boards, there is a naturally decorative pattern which is not noticed with plain sawing.  
ii. Boards produced using quarter sawing are more stable than plain sawn boards, since they release atmospheric moisture naturally.

Disadvantages of Quarter Sawing  
i. This method leaves a lot of wasted timber at the end of the day.  
ii. Quarter sawn timbers are more expensive than plain sawn due to production of much scrap.

SEASONING OF TIMBER

Seasoning is the controlled process of reducing the moisture content (MC) of a timber so that it is suitable for the environment and the intended use.

Freshly felled timber or green timber has a large amount of moisture in the form of sap which makes it heavy. Such wet wood has low strength and cannot be used for engineering work. The sap in timber is a food for fungi and wood parasites. It’s important to remove/reduce the sap so that the wood will be less attractive to these dangers.

Seasoned timber, although lighter will be stronger and more reliable. Dry-seasoned timber is easier to work with.

Methods of seasoning timber:

1.      Natural (or air) seasoning: This method is used with the timber planks stacked in the open air one on top of the other with pieces of wood called stackers used to separate them.

2.      Artificial (or Kiln) seasoning: This method relies on a controlled environment to dry out the timber. A kiln is used for seasoning timbers. The kiln is an oven or furnace which is heated up for reducing the excess moisture contents in a timber.

Reasons for seasoning or drying timber

Timber is seasoned or dried for the following reasons:

1.      It makes the wood more stable for furniture and engineering work.

2.      It makes wood lighter in weight and, therefore, easier to transport.

3.      It makes wood stronger.

4.      Seasoning makes wood durable, because insects and fungi will seldom attack the wood for sap.

5.      It enables wood to be well polished.

6.      It makes wood take preservatives more easily.

7. It makes wood to take (absorb) preservatives easily.

Calculating Moisture Content

Moisture content is calculated as a percentage respecting the wetness or dryness of any wood. The general formulae used in calculating moisture content is given as:  
  
 Wet weight – dry weight x 100  
 Dry weight 1

Example: If a sample of wood weighs 60gm before and 40gm after drying, what is the percentage moisture content?  
Solution:  
Given that wet weight – Dry weight x 100  
 Dry weight 1  
  
 = 60gm - 40gm x 100  
 40gm

= 60 – 40 x 100  
 40 1  
  
 = 20 x 100  
 40 1  
 = 50%