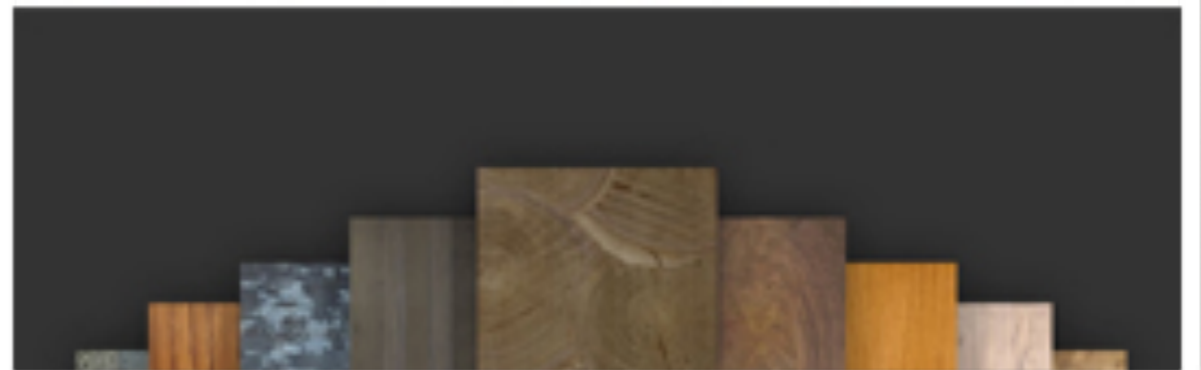


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# *TIMBER*

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# Contents

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1. General
2. Advantages & Uses of Timber
3. Characteristics of Wood
4. Defects of wood
5. Preservation of wood
6. Applications of wood
7. Commercial forms of Timber



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# 1. General

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Timber denotes wood, which is suitable for building or carpentry or various other engineering purposes, like for construction of doors, windows, roofs, partitions, beams, posts, cupboards, shelves etc



Timber



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## 2. Advantages

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Wood has many advantages due to which it is preferred over many other building materials.

- Easily available
- Easy to transport and handle
- More Thermal insulation, sound absorption and electrical resistance compared to steel and concrete
- Good absorber of shocks
- Can be repaired and altered easily



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# Uses

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- Used in form of Piles, lintels, door/window, roof members etc.
- Used in flooring, ceiling & as partition walls
- Used as formwork for concrete
- Used in making furniture, sports goods, musical instruments, railway sleepers etc



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# 3. Characteristics of wood

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- ❖ Appearance
- ❖ Colour
- ❖ Free from defects
- ❖ Durability
- ❖ Elasticity
- ❖ Fire resistance
- ❖ Hardness
- ❖ Shape



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# 3. Characteristics of wood

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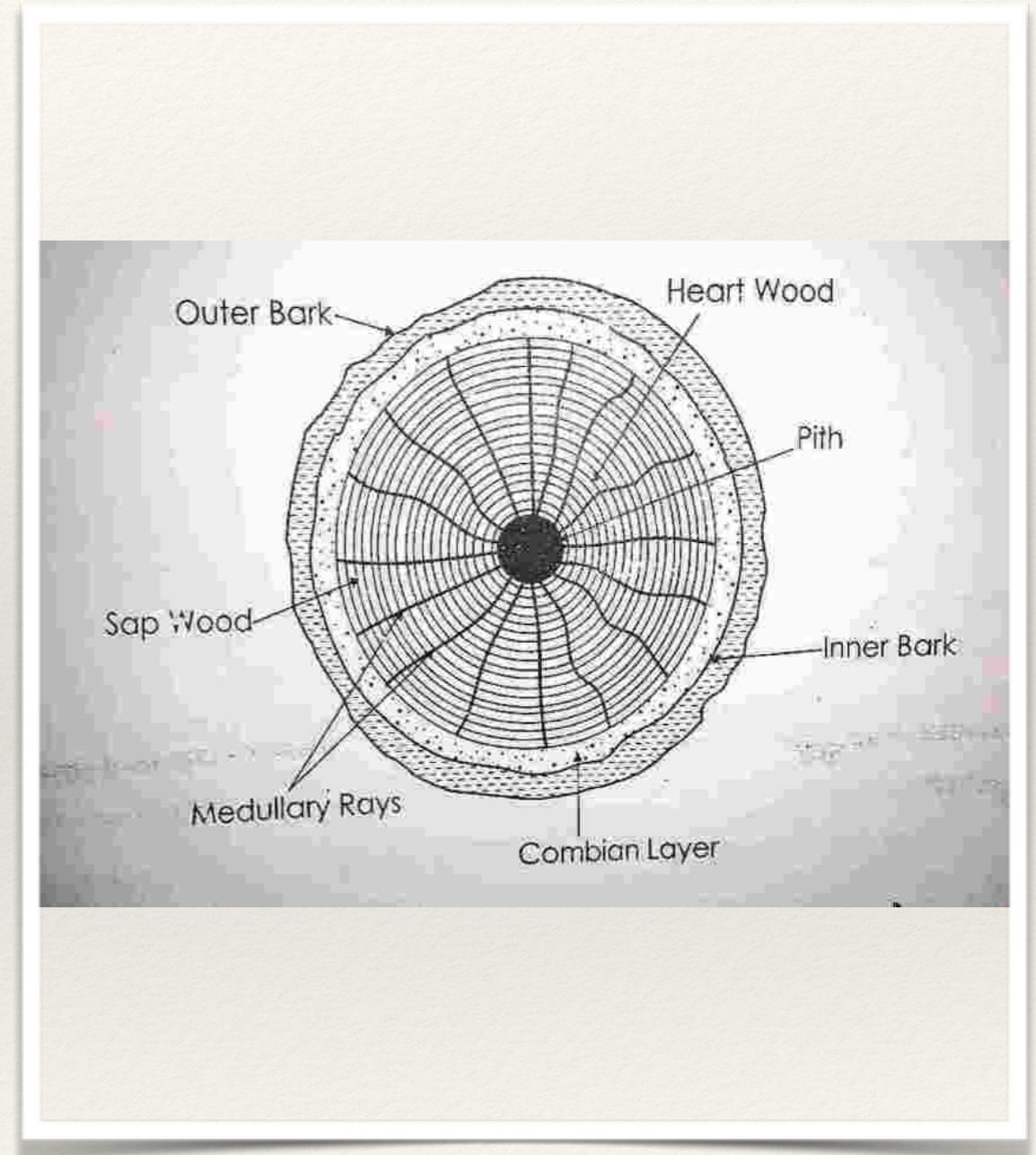
- ❖ Smell
- ❖ Strength
- ❖ Structure
- ❖ Toughness
- ❖ Water Permeability
- ❖ Weathering effects
- ❖ Weight



# 4. Defects of Wood

Defects in timber are grouped as follows:

1. Defects due to conversion
2. Defects due to insects
3. Defects due to fungi
4. Defects due to natural forces





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# 4. Defects of Wood

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## 1. Defects due to conversion:

- A. *Chip mark* - mark placed by chip on finished surface
- B. *Diagonal grain* - improper sawing of timber
- C. *Torn grain* - small impression due to fall of tool

## 2. Defects due to insects:

- A. *Beetles*
- B. *Marine borers*
- C. *Termites*



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# 4. Defects of Wood

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**3. Defects due to fungi:** When moisture content more than 20 %

*A. Blue stain:* Sap of wood is stained to bluish colour

*B. Brown rot:* Decay of timber by removal of cellulose compounds

*C. Dry rot:* Convert wood into dry powder form

*D. Heart rot:* Hollow sound when stuck with hammer

*E. Sap Stain:* Sap wood loses colour because of feed on cell contents

*F. Wet rot:* Chemical decomposition of wood  $\Rightarrow$  greyish brown powder

*G. White rot:* Attack lignin of wood assumes white mass appearance



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# 4. Defects of Wood

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## 4. Defects due to natural timber

- A. Burls* - Irregular projections because of shock at younger age
- B. Callus* - soft skin which covers the wound of tree
- C. Chemical stain*- Discoloured due to the chemical action caused
- D. Dead wood* - Timber obtained from dead standing tree
- E. Knots* - Bases of branches or limbs which are broken or cut off from the tree
- F. Rind galls* - Rind means bark and gall indicates abnormal growth
- G. Shakes* - These are cracks which partly or completely separate the fibres of wood



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# 5. Preservation of Wood (IS:401)

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Preservation of timber is carried out to:

- Increase in life of timber structures

Protect the timber structures from fungi, insects etc.

## *Requirements of a good preservative:*

- i. Cover large area with small quantity
- ii. Cheap and easily available
- iii. Free from unpleasant smell
- iv. Efficient in killing fungi, insects etc.
- v. Pleasant appearance



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# Types of Preservatives:

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i. Ascu treatment

ii. Chemical salts

iii. Coal tar

iv. Creosote oil

v. Oil paints

vi. Solignum paints



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# Methods of Preservation:

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1. Brushing
2. Charring
3. Dipping
4. Hot and cold tank treatment
5. Injecting under pressure
6. Spraying



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# Commercial forms of timber

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1. *Batten* - Breadth & thickness do not exceed 50mm
2. *Baulk* - square timber piece obtained by removing bark & sap. C/s dimension exceeds 50mm & 200mm on both sides
3. *Board* - Thickness less than 50mm & width exceeds 150mm
4. *Deal* - Thickness 50mm to 100mm & width less than 230mm
5. *Plank* - Thickness less than 50mm & width exceeds 50mm
6. *Quartering* - Square piece of timber. Length 50mm to 150mm
7. *Scantling* - Breadth & thickness exceed 50mm & length not more than 200mm