

Engineering Materials

Course Content:

- ❖ Definition and Properties of Engineering Materials
- ❖ Bricks
- ❖ Mortar
- ❖ Plaster
- ❖ Timber
- ❖ Paints and Varnishes
- ❖ Rubber and Plastic

❖ What is Timber?

wood

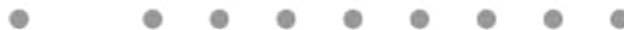
Timber



Timber

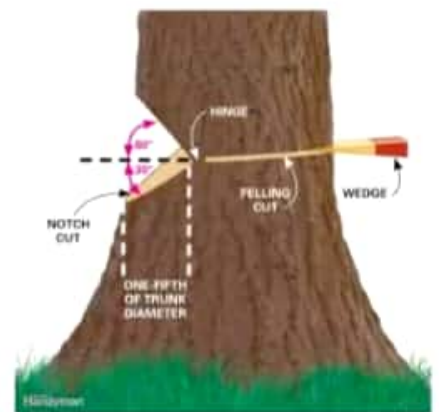
❖ What is Timber?

- ❖ The timber denotes wood which is suitable for building or carpentry or various other engineering purposes.



Timber

❖ Preparation of Timber



❖ **Felling of Trees:** Felling is the process of downing individual trees.



Timber

❖ Preparation of Timber



Seasoning of Timber:

- ❖ Raw tree contains at least 50% of its own weight as water.
- ❖ The process of drying of timber is known as seasoning of timber.

Timber

❖ Seasoning of Timber

Types of Seasoning

- ❖ Air Seasoning/Natural Seasoning
- ❖ Kiln Seasoning/Artificial Seasoning



Timber

❖ Air Seasoning/Natural Seasoning

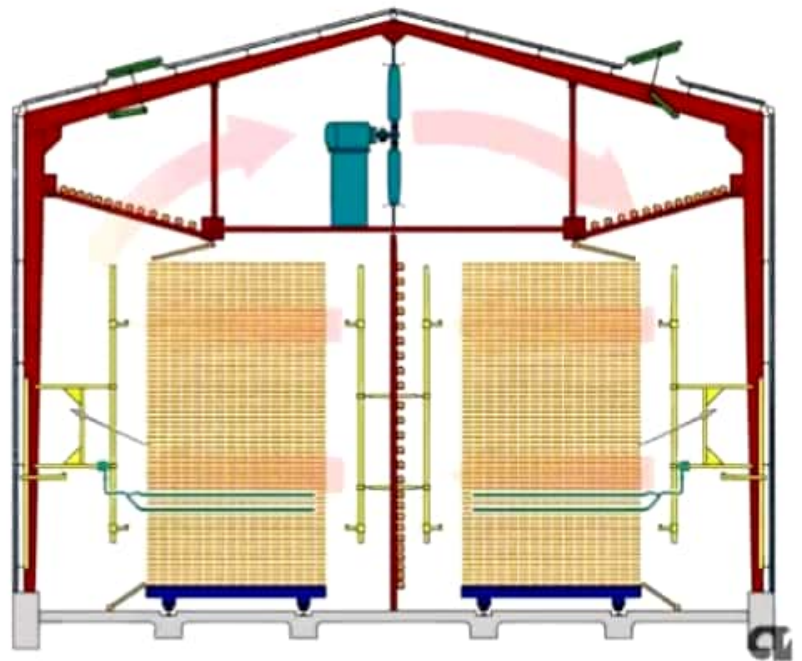
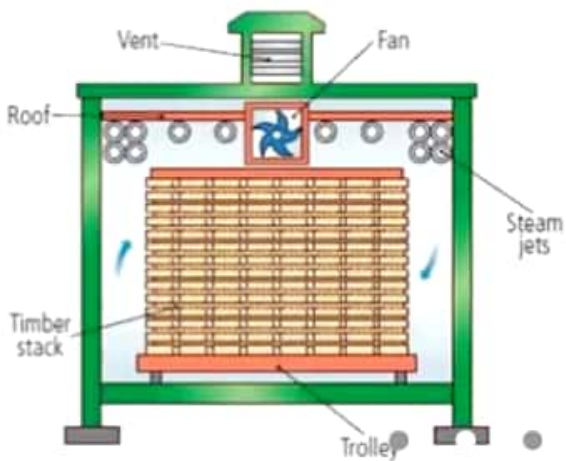


Air seasoning of Timber



Timber

❖ Kiln Seasoning/Artificial Seasoning



Timber

❖ Types of Artificial Seasoning of Timber

- ❖ Kiln Seasoning
- ❖ Chemical seasoning
- ❖ Electric seasoning
- ❖ Water seasoning



Timber

❖ Chemical seasoning



- ❖ Also known as salt seasoning
- ❖ Timber is immersed in solution of salt
- ❖ Then it is removed and seasoned
- ❖ Less chance of shrink and crack

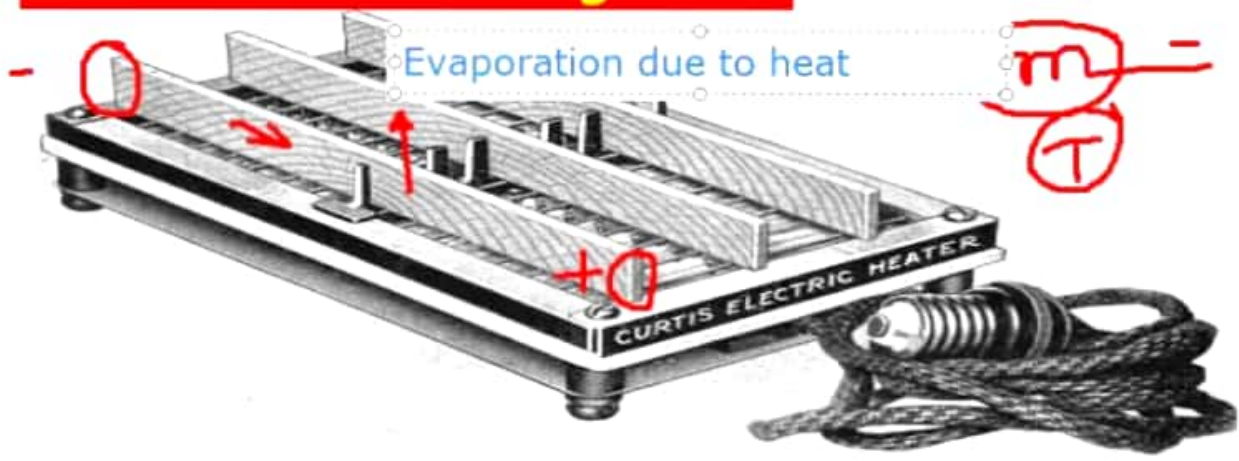




Timber

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❖ Electric seasoning



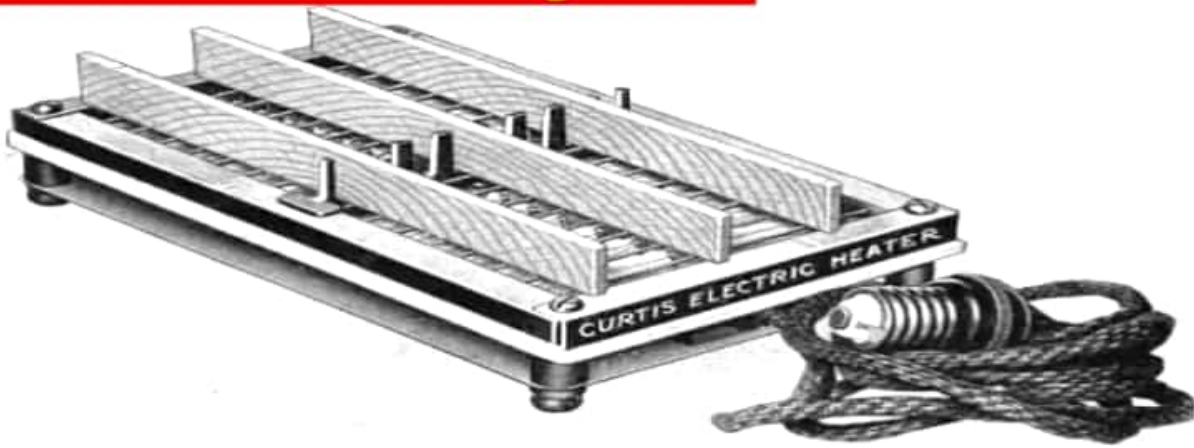
- ❖ High frequency AC current is passed through timber





Timber

❖ Electric seasoning



- ❖ High frequency AC current is passed through timber
- ❖ Timber gets heated and dries out
- ❖ Uniform seasoning is possible but costly



Timber

❖ Water Seasoning



- ❖ Timber log is immersed wholly in water
- ❖ Running water is better
- ❖ After few days, it is taken out from water and dried in air

Timber

❖ Purpose of Seasoning

- Reduce moisture
- Impart hardness, stiffness and strength
- Make the timber light in weight
- Easy to paint and polish
- Easy to add preservative and paint
- Reduce seasonal changes (crack, shrink or warp)
- Increase life



Timber

❖ Natural Vs. Artificial Seasoning

Natural	Artificial
Slow process	Quick process
Simple and economical	Technical and expensive
More space required	Less space required
More prone to fungi and insect attack	less prone to fungi and insect attack

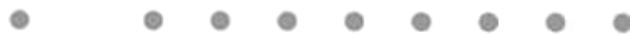


Timber

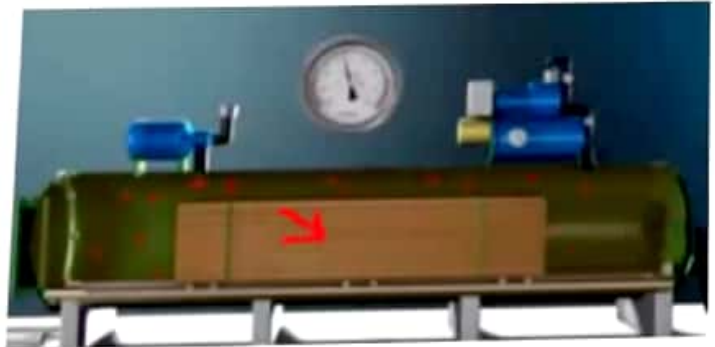
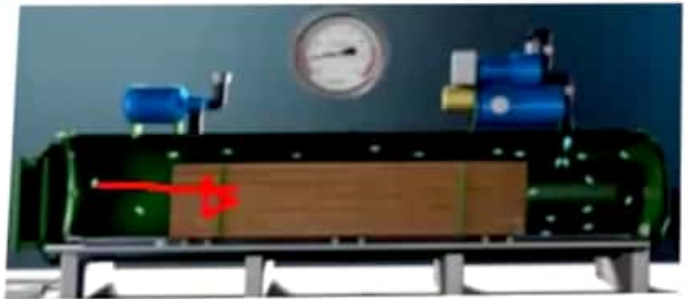
❖ Preparation of Timber

❖ Adding Preservative:

- ❖ To increase the life of timber and
- ❖ To protect the timber from attack of fungi, insects, preservatives are added.



❖ Adding Preservative



Timber

❖ Quality/Properties/Characteristics of good Timber

- ❖ The color of good timber should preferable be dark.
- ❖ A good timbers should be free from defects.
- ❖ It should be durable.



Timber

❖ Quality/Properties/Characteristics of good Timber

- ❖ The color of good timber should preferable be dark.
- ❖ A good timbers should be free from defects.
- ❖ It should be durable.
- ❖ It should have straight fibres.
- ❖ It should be hard.
- ❖ It should not deteriorate easily under mechanical wear or abrasion.
- ❖ It should have sufficient strength.
- ❖ It should be uniform in size and shape.
- ❖ It should be tough.
- ❖ It should stand reasonably the weathering effects.

