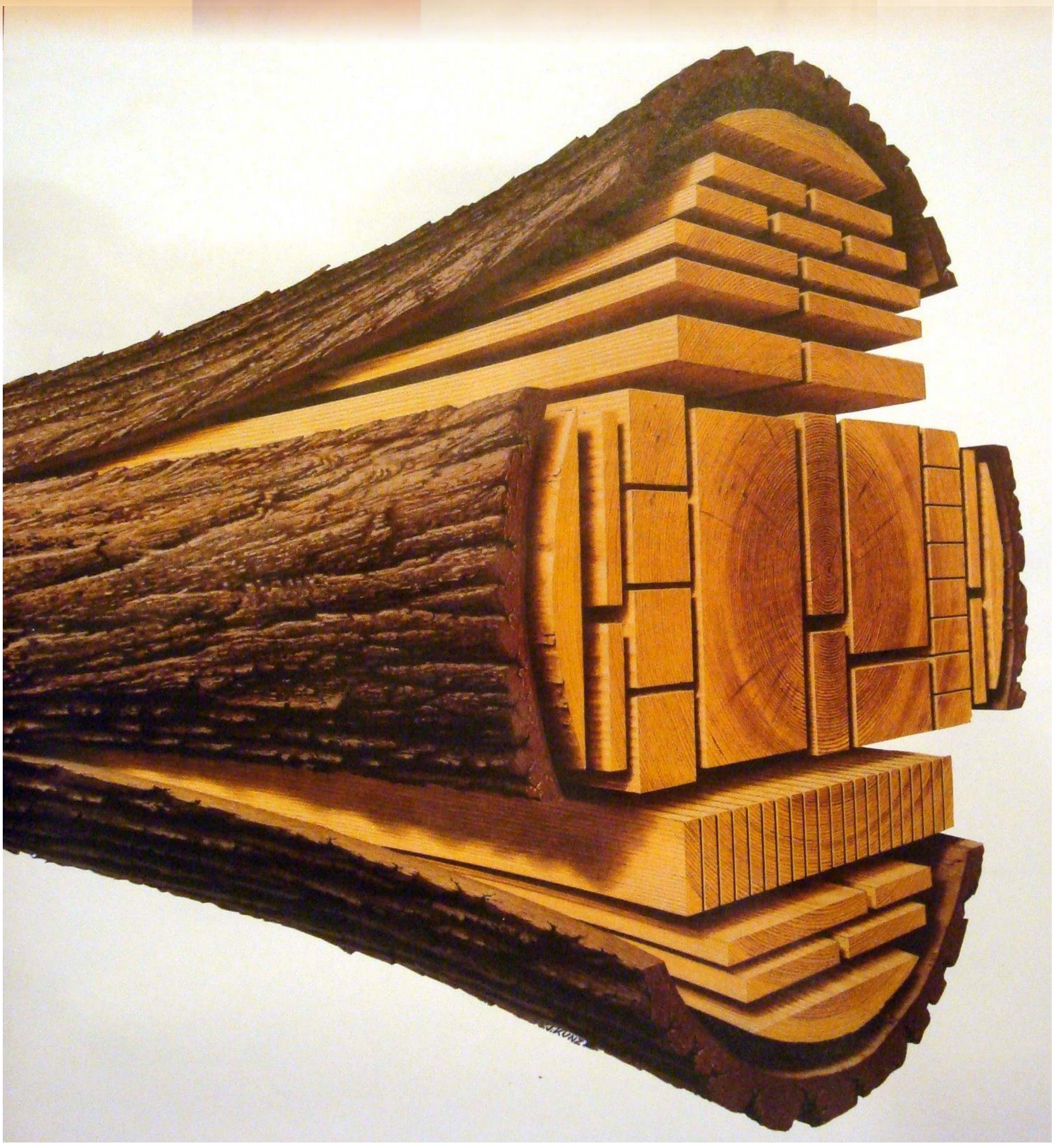
UNIT 4

TIMBER PRODUCTS

Asst Prof Farha Shermin

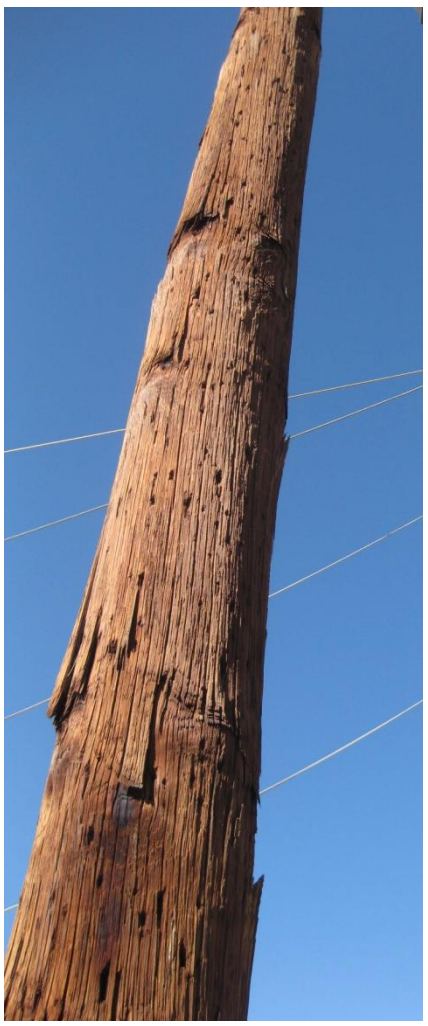


MARKET FORMS OF TIMBER

- BATTEN
- BAULK
- BOARD
- DEAL
- END

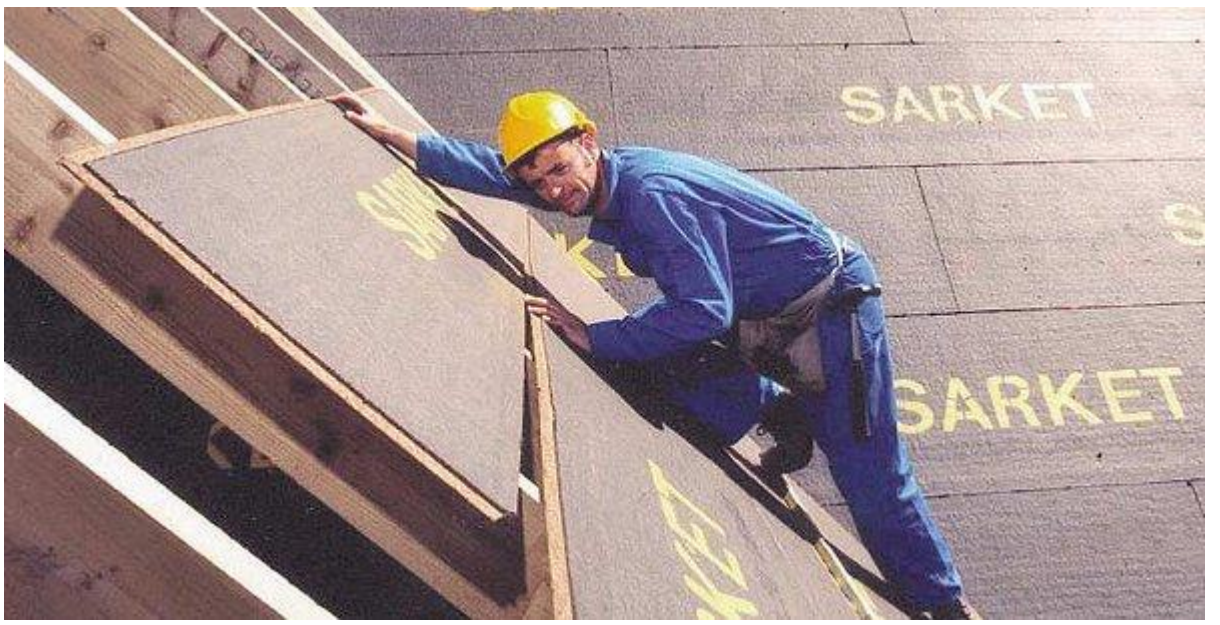
MARKET FORMS OF TIMBER

- LOG
- PLANK
- POLE
- QUARTERING
- SCANTLING



INDUSTRIAL TIMBER

FIBRE



BOARD

INDUSTRIAL TIMBER

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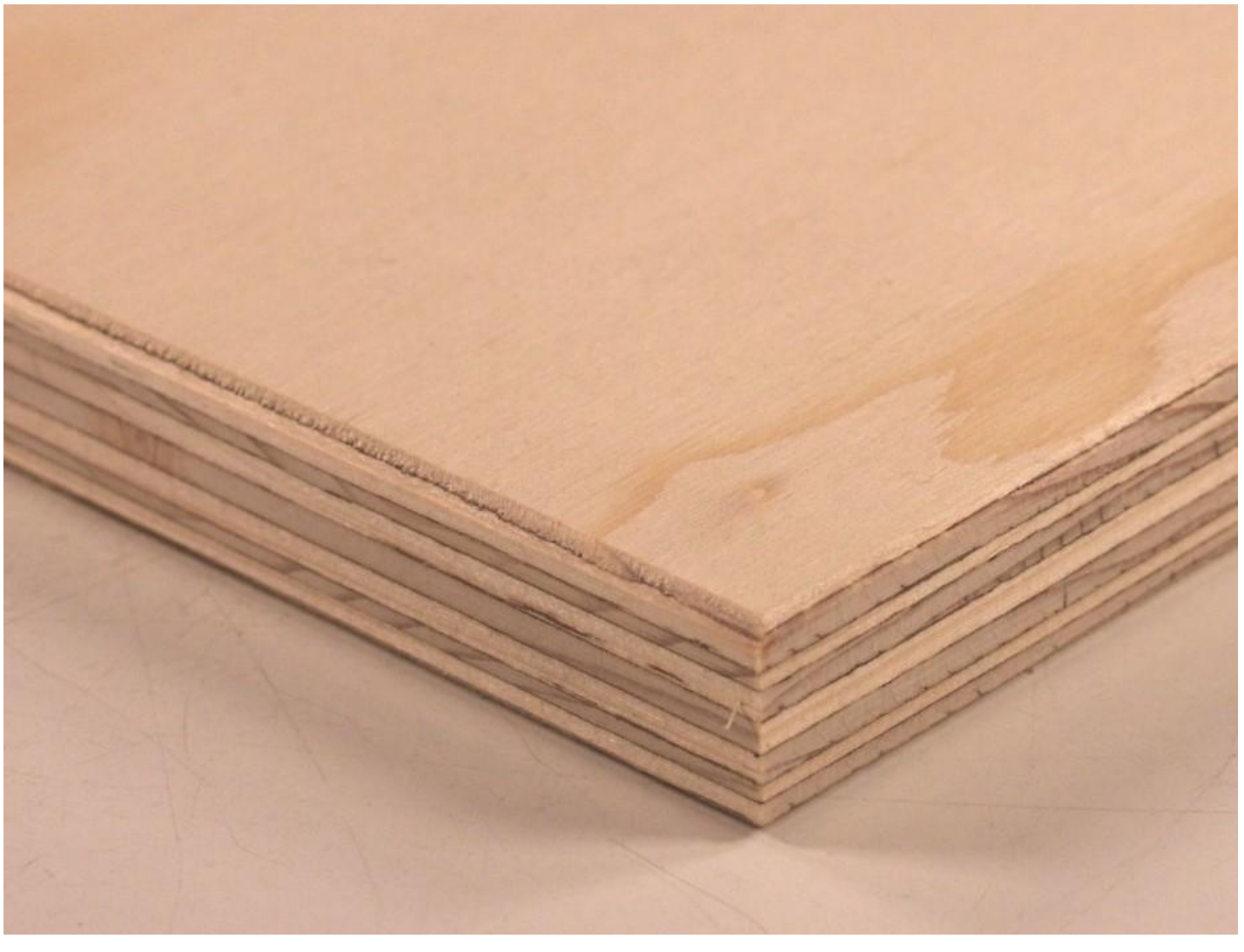
•The primary process in the manufacture of wood based products is veneering which produces thin sheets of wood known as *veneers. The thickness of veneers varies from 0.4 to 0.6 mm. In no* case it should exceed 1 mm.

•The logs to be used for this purpose are kept in wet storage to avoid end splitting and are softened by heating with hot water or steam and the bark is removed. The log is then cut to veneers. Depending on the cutting process, the veneers are classified as rotary veneers and sliced veneers .These are used in the manufacture of plywood and other laminated boards.

•A renewable, sustainable product, wood veneers offer environmental advantages over other materials and can be an affordable alternative - and potentially more dimensionally stable option to solid timber - in certain applications.

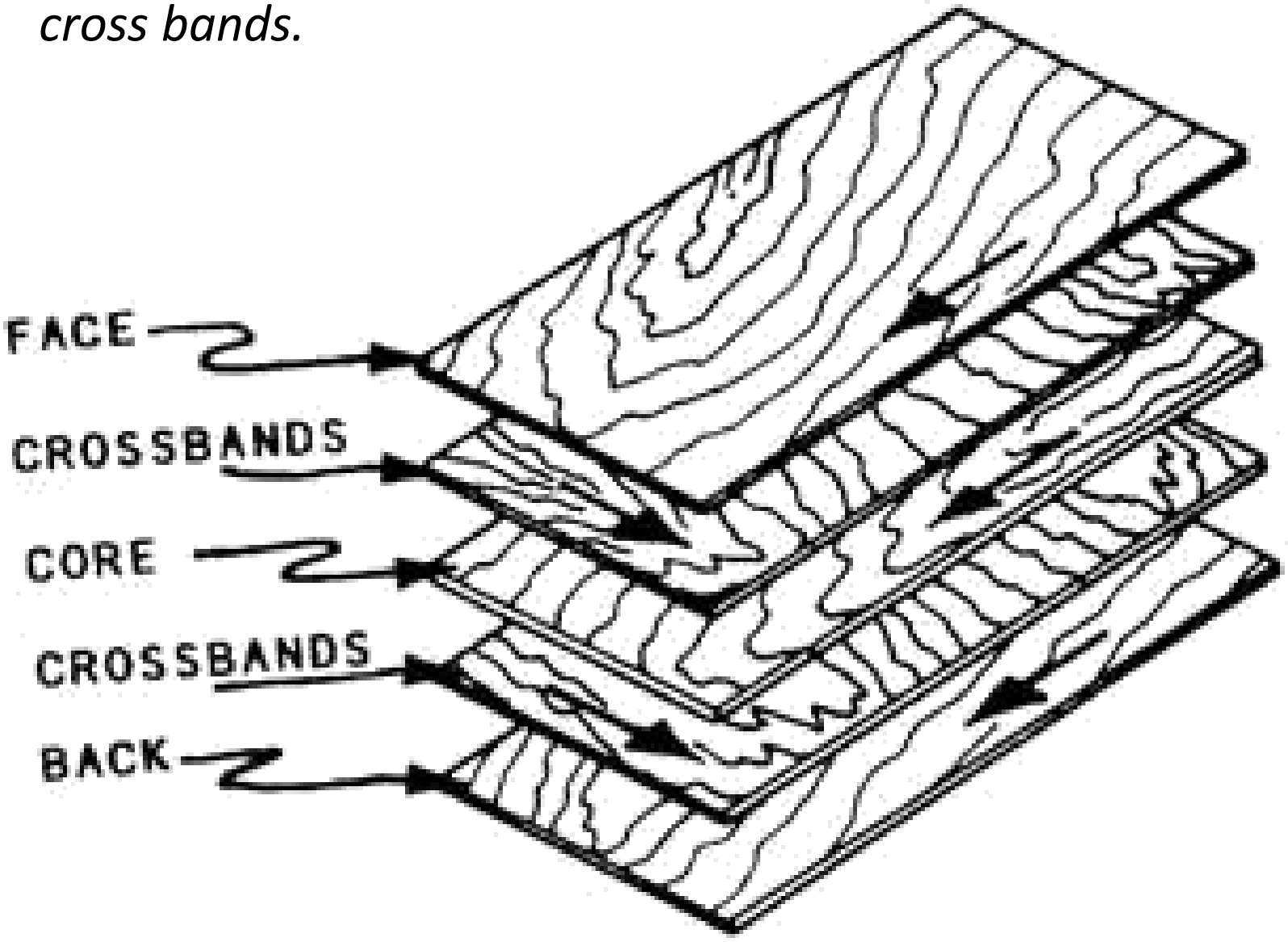
•As a wood product, veneer stores carbon and also maximises the use of harvested wood.

INDUSTRIAL TIMBER



PLYWOOD

A wood panel glued under pressure from an odd number (usually 3 to 13) of layers/piles of veneers is known as plywood .The outer most veneer sheets in a plywood panel are called/faces. The interior ply/plies which have their grain directions parallel to that of the faces are termed as *core/centre. Other piles which have grain directions perpendicular to that in* the face are termed as *cross bands.*



ADVANTAGES

1. It has good strength both along as well as across the grains.
2. The wood shrinks or swells more across the grains. Since plywood has cross-grained construction, the tendency to shrink or swell is reduced.
3. It has better splitting resistance due to the grains in adjacent veneers in cross direction as such nailing can be done very safely even near the edges.
4. Plywood can be curved into desired shapes.

PARTICLE BOARD

•They are manufactured from particles of wood or other ligno cellulose materials which are agglomerated, formed and pressed together by the use of an organic binder together in the presence of heat, pressure or moisture.

•**Particle board**, also known as **chipboard**, is an engineered wood product manufactured from wood chips, sawmill shavings, or even sawdust, and a synthetic resin or other suitable binder, which is pressed and extruded. Particleboard is a composite material.

•It is cheaper, denser and more uniform than conventional wood and plywood and is substituted for them when appearance and strength are less important than cost.

•Particle boards avoid wastage of timber as in its making the entire volume of the fallen tree can be utilized. The trees used for making particle boards are eucalyptus, subabool, and rubber wood, and waste of saw mill. These boards provide dimensional stability, smooth uniform surface, and no difficulty in nailing.

FIBRE BOARD

These boards built up of felting from wood or vegetable (wood wastes, waste paper, agricultural wastes, etc.) are classified by the process of their moulding.

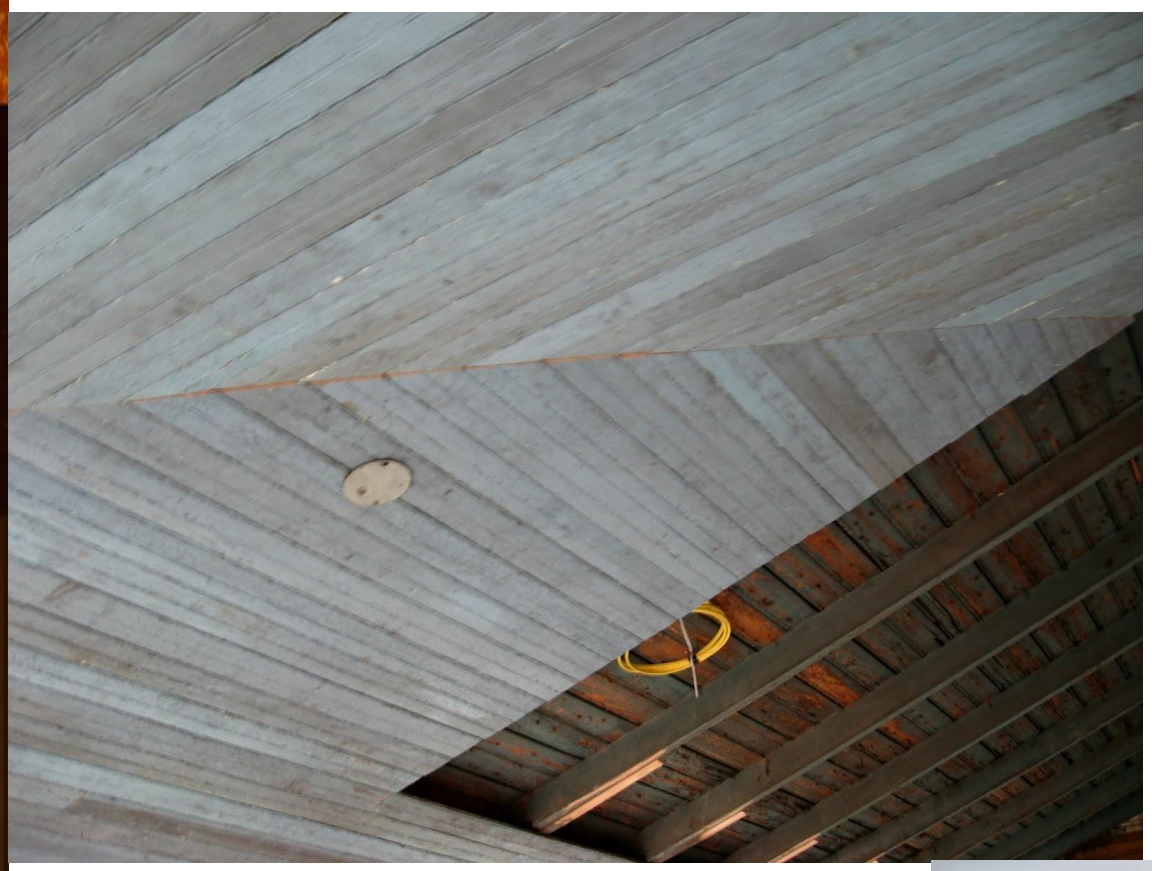
If the boards are moulded by wet process, the main bond is by the felting of woody fibres and not by added glue. For the boards moulded by dry process, the bond between the pre dried fibres is improved by adding 4–8% of synthetic resin. For better performance wood preservatives and other admixtures are often added to the pulp.

HARD BOARD

Hard boards have one surface smooth and the other one textured. These have higher densities, better mechanical properties, and improved moisture and termite resistances.

It is similar to particle board and medium-density fibreboard, but is denser and much stronger and harder because it is made out of exploded wood fibres that have been highly compressed.

The strength and weather properties of hard boards can be improved by oil tempering and such boards are known as tempered hard boards. Some of the trade names of hard boards are Masonite. Celotex. Essex boards, etc.



BLOCKBOARD

Carpenters usually prefer using blockboards over other options, when lengthy pieces or wooden boards are required while making furniture. This is because unlike plywood which has a tendency to sag in the middle, blockboard is stiffer and is less prone to bending. Another advantage of blockboards is that they are also cheaper compared to good quality solid woods .

BLOCK LAMIN BOARD

ADVANTAGES OF BLOCKBOARD

Lighter in weight:

The blockboard core is made from solid blocks of wood that is usually obtained from softwood trees such as pine, mango or cedar. In comparison good quality plywood is often made from veneers obtained from hardwood trees

The advantage of being light-weight is that it can be more easily transported to the end-location. The most common application of this is in the case of doors that we use inside our homes. Doors are very often made from blockboard.

Lesser tendency to sag or bend

In cases where very long pieces of wood are required in furniture making, such as in long book shelves, panels, benches and tables, blockboard is often preferred over plywood. This is because long plywood pieces tend to bend in the middle, whereas blockboard is stiffer and less prone to bending. When the board length exceeds 6 or 7 feet, blockboard is generally used instead of plywood.

BLOCKBOARD

Costs Less

Another important advantage of blockboard is that it is cheaper than good quality solid wood as well as hardwood plywood. This is because softwood costs lesser than hardwood.

Better than Particle Board and even MDF

Compared to other engineered wood products that are popular these days, such as Particle boards(which is made from small particles of wood flakes/chips) and even MDF (which is made from wood fibers), blockboard is considered to be better. It is comparatively stronger and lasts longer. Also from the carpenters' point of view, the added advantage of blockboards is that it is easier to work with, since it can take nails as well as screws. In comparison, particle board and MDF do not have much nail holding strength and hence only screws are used on them.

USES

Blockboard is used to make doors, tables, shelves, paneling and partition walls. It is normally used for interior usages, due to the type of glues used. To achieve maximum strength, it is important to ensure that the core runs lengthways. Blockboard (also called lumber core) has very good screw holding and can be considered as solid wood; it has a good resistance to warping.

LAMINATE

Lamination is the technique of manufacturing a material in multiple layers, so that the composite material achieves improved strength, stability, sound insulation, appearance or other properties from the use of differing materials. A laminate is usually permanently assembled by heat, pressure, welding, or adhesives.

Examples of laminate materials include melamine adhesive countertop surfacing and plywood. Decorative laminates are produced with kraft papers and decorative papers with a layer of overlay on top of the decorative paper, set before pressing them with thermoprocessing into high-pressure decorative laminates.