‘Manufactured boards’

Manufactured boards are made from the waste sections of felled trees. The wood is reduced to pulp, particles or thin strips and bonded together using special adhesives or resins.

They offer advantages over natural timbers:

- They are available in much larger sheets (2400mm x 1200mm)
- They have consistent properties throughout the board
- They are more stable, meaning they are less likely to have faults
- They make sure of lower-grade timber, so can have environmental and economic benefits
- They can be faced with veneer or a laminate to improve their aesthetic appearance
- Due to their consistent quality, they are well suited to CNC machining and volume production

Disadvantages include:

- Adhesives used in manufacture can be hazardous when inhaled
- Adhesives used in manufacture can blunt tools quickly
- Many traditional woodworking joints cannot be used and the edges are hard to finish
- Boards are prone to absorbing moisture

Manufactured boards fall into two categories:

- Laminated boards are produced by gluing large sheets of veneers
- Compressed boards are manufactured by gluing particles, chips or flakes together under pressure

Manufactured board	Description	Properties	Uses
Medium density fibreboard (MDF)	Made from compressed fine wood fibres bonded together with resin	This board is relatively inexpensive and has a flat, smooth surface	• Flat packed furniture, kitchen units and interior panelling; **comes moisture-and-fire resistant varieties**.
Plywood	Made from wood veneers glued together with alternating grain	Very strong, with a flat, smooth surface	• Construction (roofing and cladding) and furniture • **Comes in water resistant marine grades for use on boats**
Chipboard	Made from wood chips bonded together with resin	Inexpensive construction material. Limited strength	Low cost furniture, kitchen worktops and shelving
Hardboard	Made from compressed fin wood fibres bonded together with resin. Has one smooth side and one textures side	Very inexpensive material used for drawer bases and backs of wardrobes	Drawer bottoms and cabinet backs

MDF

Plywood

Chipboard

Hardboard

60 mins

30 mins: read information and make notes.

10 mins

Watch the videos and take notes

15 mins Complete the questions

Manufactured boards
Timber in sheets that have been manufactured to give certain properties
Veneers
Thin sheets of natural timber

KEYWORDS

‘Timber properties’

60 mins

Different types of wood have varying working properties such as:

Strength – The ability to withstand force without breaking
Hardness – The ability to resist wear
Toughness – The ability to absorb energy without fracturing
Malleability – The ability to be bent and shaped without breaking
Durability – How long it will last
Ductility – The ability to be stretched and pulled without breaking

It makes them suitable for different purposes and commercial products. Considering the properties of wood, designers must also consider how easy the materials are to manufacture.

Flat packed furniture

Manufactured boards are well suited to self-assembly products
They are generally less expensive than hand-made items
Arrives boxed making it easier to store and transport
Relatively straightforward to assemble with a basic tool kit

Wooden toys

Wooden toys need to be durable to withstand being thrown, hit and dropped.
Small children are likely to chew on toys, so the material should be hard enough not to splinter easily and cause harm to the child.
Hardwoods such as beech and oak are commonly used for toys due to their hardness and durability.
They are also easy to paint and unlikely to break into small parts that may pose a choking hazard.

https://www.youtube.com/watch?v=Lpz4nX1KZGg

Manufactured boards
Timber in sheets that have been manufactured to give certain properties

Veneers
Thin sheets of natural timber

KEYWORDS

Questions:

1. Different types of wood have varying **working properties** such as:

- _____ – The ability to withstand force without breaking
- _____ - The ability to resist wear
- _____ – The ability to absorb energy without fracturing
- _____ – The ability to be bent and shaped without breaking
- _____ – How long it will last
- _____ – The ability to be stretched and pulled without breaking

It makes them suitable for different purposes and commercial products. Considering the properties of wood, designers must also consider how easy the materials are to manufacture.

2. What properties of manufactured board make it suitable for flat-pack products?

_____

_____

3. Why do you think it may be less aesthetically appealing?

_____

_____

4. State **TWO** properties or characteristics that make medium density fibreboard (MDF) suitable for use in flat packed furniture.

1. _____

_____

2. _____

_____

5. Give **THREE** advantages of using Medium Density Fibreboard (MDF) instead of solid natural timber.

Advantage: _____

_____

Advantage: _____

_____

Advantage: _____

_____

6. Correctly name the two types of manufactured board.

_____

_____