

AS LEVEL Section A

FACT FILES

Technology & Design

For first teaching from September 2011

For first award in Summer 2012

Wood Part 2



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Learning Outcomes

Students should be able to:

- Demonstrate an understanding of the main advantages and uses of the following manufactured boards plywood, blockboard, chipboard, hardboard and medium density fibreboard (MDF).



Course Content

Plywood



Plywood is built up of odd numbers of thin layers (veneers) of hardwood or softwood called laminates, with each one running at 90 degrees to each other. The layers are glued together by an adhesive and pressure applied.

Advantages

- Plywood is strong because all of the layers of veneers are at right angles to each other.
- It is resistant to warping and cracking which makes it useful for construction work.
- Plywood is cheaper than similar boards.

Disadvantages

- Plywood is porous due to the ways the layers have been built up.
- It will splinter badly when cut

Uses

- Making chests and cabinets
- Constructing a roof
- Flooring
- Sheds and building cladding
- Chairs



Blockboard



Blockboard is built up with numerous strips of softwood sandwiched between two sheets of hardwood on the top and bottom and glued together under high pressure.

Advantages

- Fairly strong all over sheet
- Cheap
- Resistant to splitting
- It is lighter in weight than MDF and Plywood
- Stability is generally good
- Does not shrink

Disadvantages

- Retains moisture
- Not as strong as the original wood that has been used to construct it
- Needs veneer on edges

Uses

- High quality and long-lasting furniture
- Shutters
- Structural components such as shoulders
- Shelves and common cabinets
- Table tops
- Kitchen worktops

Chipboard



Chipboard is made up of wood particles including chips, shavings and sawdust from all different types of commercial timber glued together under heat and pressure.

Advantages

- Chipboard is easy to use
- It is cheap
- It is a strong material which will withstand pressure
- Chipboard is aesthetically designed with its altered finishes and wood-like features.

Disadvantages

- Chipboard is obviously made up of various small particles, so it is likely to crack and fall apart over time.
- Chipboard will retain moisture that it comes in contact with and will swell and become unusable.
- When chipboard is cut it can leave rough edges.
- It needs veneer to cover it.

Uses

- Kitchen tops (which are laminated with melamine)
- Fire doors
- Flooring including tiles, slate and vinyl
- Shelving



Hardboard



Hardboard is made from wood fibres obtained from chips and pulped wood waste. The pulp is put under pressure until the fibres bond to produce a tough board that is smooth on one side and rough on the other.

Advantages

- It is cheap.
- Hardboard has a smooth surface that can be covered easily with paint.
- Oil tempered hardboard, is resistant to being dented and scratched.
- Hardboard is adaptable and can be processed in such a way that it is textured, embossed, veneered or backed with plastic.

Disadvantages

- Hardboard is not suitable for outdoors due to its poor resistance to water.
- It is a weak material

Uses

- Beds
- Cabinet panels
- Bottoms of drawer
- Electronic component cabinets
- General purpose backing
- Cabinet tops
- Doors
- Packaging to make containers for fragile pieces, equipment and food



MDF



MDF is a relatively cheap board of good quality. This board is composed of fine wood dust and resin pressed into a board. This material can be worked, shaped and machined easily. Paint can be applied to it without the need for an undercoat or primer.

Advantages

- MDF is fairly strong and durable.
- It is easily made in industry.
- Easily cut, shaped, and drilled.
- MDF can be manufactured in several different forms.
- MDF can be fire resistant and resistant to water if particular resins and additives have been introduced into the process.

Disadvantages

- MDF can be easily split and damaged
- Heavy
- MDF contains a lot of glue, which can damage or blunt tools with cutting edges.
- MDF can be harmful to your health when it is being cut or sanded.
- It is important when working with MDF that you are in a well ventilated area and wearing eye protection and a face mask.

Uses

- Kitchens and baths worktops
- Flooring
- Furniture manufacture
- Cabinet making
- Joinery
- Exterior cladding





Revision questions

1. Plywood, blockboard, medium density fibreboard (MDF) and chipboard offer many advantages and are suitable for a wide range of uses.
 - (i) State **one** main advantage plywood has compared to blockboard.
 - (ii) State **one** advantage MDF has compared to chipboard.
 - (iii) State **one** specific application for plywood and one specific application for MDF.
2. Briefly outline **two** main properties of Chipboard Melamine that makes it suitable for kitchen worktops.

