

AS LEVEL Section A

FACT FILES

Technology & Design

For first teaching from September 2011

For first award in Summer 2012

Wood Part 3



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design



Learning Outcomes

Students should be able to:

- Demonstrate an understanding of the main purposes and types of finishes for wood—stains, oils, polishes, paints and synthetic resins.



Course Content

Wood Stains

Wood stain soaks into wood to give it, its colour and enhance the grain. Wood stains are generally water based, which means that they dry a lot quicker than oil based stains which are more versatile and last longer. The purpose of wood stain is to colour the wood. Wood stain does not act as a protecting agent. It is cheaper than other wood finishing techniques.



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Applying Wood Stains

Applying wood stain to most types of wood can be done with a fairly simple technique.

To apply wood stain correctly, it is important to keep your work area free of dust and other contaminants.

Following process must be followed when applying wood stain. Start with a fine haired brush, that will hold a lot of stain. Then lightly brush the stain onto the surface of the wood. Make sure to apply the stain consistently to avoid variations in colour. Then with an absorbent rag, wipe off the extra stain. The longer the stain is left on the surface of the wood, the darker and deeper the colour will be.

Wood stains are generally applied to wooden floors, wooden fences and so on.

Oils

Oils are used to bring out the natural appearance of wood. They are slower to dry than water based finishes and they do not penetrate the wood as deeply. Oils are also less likely to produce overlap marks. Oils range in price but are generally more expensive than wood stain.

Applying Oils

To apply oil correctly the following process must be followed. Wood that has to be finished with oil must be thoroughly sanded to even out the open pores in order to create a smooth surface. Before applying the finish, the surface must be cleaned thoroughly with a cloth.

The oil should be applied with a clean cloth, using a circular motion to work the oil into the wood. Apply the oil evenly and liberally, until the wood has stopped absorbing it.

The oil should be rubbed firmly into the wood with the heels of your hands, working along the grain. This should be done for about 15 minutes; when rubbed, the warmth generated will help the oil penetrate into the wood. After thoroughly rubbing the surface, wipe the material with a clean cloth. All excess oil must be removed.

Different types of Oils

Olive oil is used as a finish for wood because it is odourless and non toxic for products such as bread boards and salad servers. This finish is used because these products come in contact with food.

Linseed oil dries slowly and shrinks little upon hardening. Linseed oil soaks into the wood pores, leaving a shiny but not glossy surface that shows off the grain of the wood. Linseed oil is a traditional finish for gun stocks, cue shafts and can be used in place of epoxy to seal modern wooden surfboards.

Polishes



The purpose of a polish is to enhance the beauty of the wood by cleaning the surface finish, raising the shine and giving the wood a deeper, richer look. There are numerous different types of polishes available on the market.

Examples of these are as follows:

- **Beeswax** has been used for centuries to protect wood and help bring out its glossy natural shine.
- **Carnauba** or **silicone wax** increases the durability of the wood.
- **French polish** results in a very high gloss surface, with a deep tone and colour. Time, skill and experience are needed when applying numerous thin coats of shellac. The finish is considered to be one of the most aesthetically pleasing ways to finish wood. Unfortunately it is also known to be sensitive to damage.
- **Cellulose Lacquers** can be sprayed straight on to the wood. Unfortunately they can crack and have a short life due to the brittleness.

Paints



There is a vast array of different paints; however, these products have many properties in common because almost all of them contain pigments suspended in bases. Bases usually contain a liquid such as oil, a solvent, or water. Paints range in value depending on what the base is, oil based will be more expensive than water based paints.

Applying Paints

In order to successfully apply paint to a wooden surface it is important to undergo the following steps.

1. The wooden surface should be sanded down and smooth.
2. A primer is then needed in order to give the surface an even surface to bond to.
3. Once the primer has dried it is important to sand the wood again as it will not be smooth. Not a lot of pressure will be required.
4. Once the surface is smooth then paint can be applied evenly with a brush.

Primer



Primer is a coating put on wood before painting. Priming allows enhanced adhesion of paint to the wood, increases paint resilience and provides protection.

Primer is used before painting for various reasons

- Wood is absorbent and will soak up the solvent from paint, drying the paint prematurely.
- Without a primer, several layers of paint can be necessary to completely obscure the wood grain and ensure even colour.

Emulsion Paints



Emulsion paints are water based as a result they dry quickly and are easy to apply but are not waterproof or hardwearing.

Emulsion paint is made up of droplets of liquid polymer binder dissolved in water which means it can be spread easily. Emulsion paints are generally used on interiors walls and ceilings.

Oil based Paint

Oil paint contains natural or synthetic resins or oils as a base whereas other paints will mainly use water. Oil Paint dries by oxidation when exposed to air rather than evaporation, so it will take much longer to dry.

Oil based paints are durable and waterproof and are often used on the exteriors of boats.

Polyurethane Paint



An oil-based paint containing polyurethane resin makes it tougher and provides a really durable surface to withstand greater abrasion. Polyurethane is used on furniture and toys.

Synthetic Resins



Synthetic resins give a much harder and tougher surface finish which is heatproof and waterproof. It is also capable of withstanding dents and scratches. It is available in clear, translucent or coloured shades and gives a high gloss, satin or matte finish. Synthetic Resins is best applied in thin coats using a brush or sprayer, gently rubbing down between coats with wire wool. Synthetic resins are used on wooden floors and furniture.



Revision questions

1. State **two** different surface coatings suitable for wood and briefly explain the purpose of each.
2. What preparation is required before applying paint to a wooden surface?
3. What is the purpose of a primer?