

2.1.2: Product design (k) appropriate surface treatments

Metal surface treatments – these can be for:

- functional reasons, to improve the performance of the material/product
- aesthetic reasons, to improve the visual appearance of the material/product.

Metals

The following finishes are commonly applied to metals:

- powder coating
- galvanising
- enamelling
- oil and wax finishing
- primer/paint
- electroplating.

Surface preparation for finishing metals

The removal of dust, grease and rust is critical before applying a finish to a metal surface. Some finishes need grip to adhere to some metals, so it is important to key the surface to accept the finish.

Surface treatment of timbers

Timbers are finished with both functional and aesthetic applications, depending on the location of the product/timber and the desired outcome. Timber finishes are varied and include:

- varnishes
- wood stains
- oils
- polishes

- preservative finishes
- paints.

Applying finishes to timbers

Painting provides a colourful finish but also protects the timber. Glossy, matt or silk paints can be applied with a brush, roller or sprayer. Some include a primer too.

Wood stain is applied to enhance the appearance of the wood. Stains can also provide some protection but normally a coat of varnish is used to seal the stain.

Oil and wax soak into the timber and can enhance its appearance, whilst repelling moisture and water.

Varnish provides a shiny coat, usually applied in layers to make it more durable. Glossy and matt style varnishes are common.

Dip-treating timber protects the surface of the material, but outdoor timber fences tend to be made from pressure treated timber, which is far more long-lasting.

Self-finishing polymers

Some plastics are called self-finishing. This means that once they are formed into their desired shape using a mould, their surface will require no further finishing.

Vacuum forming will allow a flat, glossy sheet material to take the shape of the mould or former, and the outcome will be a duplicate of the surface of the mould or former used.

Finishing processes applied to paper, card and board products

Sometimes, a finishing process when manufacturing a paper, card or board product can be:

- stamping the shape out of a sheet (die cutting)
- a specialist finishing process like UV varnishing e.g. on a business card
- a texturing process like embossing or debossing, which creates a raised or lowered surface finish e.g. in a greeting card or wedding invitation.

Folding process

Some paper, card or board products, such as greetings cards, menus, or invitations need to be folded in order to be posted, delivered or to stand up once in use.

To fold a paper, card or board, normally a crease would be applied so that the material bends without breaking, tearing or weakening. Sometimes a perforated line or score is applied so that the material bends or folds in exactly the right place.

Binding products

When a book or pamphlet is bound, it needs to open without any of the separate pages falling out or becoming removed. Hand stitching is a skilled and time-consuming process that fixes pages together, but comb binding is a less specialist and more common method. This is when holes are punched so that a plastic bind can hold the pages in order.

Other finishing processes to bind products include stapling and using split pins.