

Construction: Sanding

This video will give an overview of the materials and techniques needed for sanding wood and foam. Regardless of how precisely you cut and glue, there will come a time when a bit of sanding will be necessary. Sandpaper should almost always be used with some type of sanding block or backing. These can be in various shapes and sizes. An emery board (often called a nail file) is an example of a sanding block with the abrasive permanently attached to the stiff cardboard backing.

The sanding block should be as light as possible to allow you to feel the sanding process. Depending on what is to be sanded the block can be rigid or flexible. The sand paper can be attached to the block with double sided tape, an adhesive or held by hand.

For most applications you will use sandpaper between 180 and 320 grit. The lower the number the more coarse the abrasive, while higher numbers will be finer or smoother. The coarser grits are used for aggressive material removal while the finer grits will make the sanded surfaces very smooth. Fine grits should not be used for heavy material removal and coarse grits should not be used to obtain a smooth finish.

One of the main applications for sanding is to make glued joints smooth for covering. The connection of a wing rib to the leading and trailing edges often needs to be sanded to remove bumps that might tear the covering. These raised areas can be addressed with an emery board. Since the structure is fragile very little pressure should be used. Often just the weight of the emery board is sufficient. You will want to sand in the direction the material is best supported. Start with gentle pressure to make sure the structure will tolerate the sanding process without breaking. It might be necessary to hold the structure differently than planned to properly support it.

Sanding is a great way to remove small amounts to shorten a part. Angles can easily be created and modified by sanding.

For solid flying surfaces such as some wings on elastic launched gliders the airfoil shape is generated by sanding. The piece to be sanded is placed on a flat surface that can tolerate scratches. Mark the surface to be sanded with a soft pencil using very little pressure. Magic markers will often soak too far into the wood making them unsuitable. Hold the sanding block at an angle and monitor your progress by how the pencil lines disappear.

Sanding is also very useful in generating shapes that are difficult to cut. Many times an outline even when a template is used cannot be cut to the accuracy desired. The "rough cut" blank can be held against the template and the perimeter sanded right to the shape of the template.

Sanding foam is not much different than sanding balsa. Because foam is generally softer than balsa care must be used to not apply so much pressure that the foam is mashed. Generally coarser grits of sandpaper are used on foam to reduce the pressure applied with the sand paper.

It is critical to sand in the proper direction if you are trying to generate an airfoil shape. One pass traveling from the trailing edge to the center of the wing will almost always lead to disaster. As with any cutting tool sandpaper will become dull. You will notice it no longer works as well as it did. The microscopic sharp edges of the grit have become rounded off, making the paper feel smoother than it was. When you feel a dull piece of sand paper you will be tempted to use it as a finer grit. Throw it away

because it will no longer cut properly. In trying to make it work you will use more pressure and mash the item you are trying to sand.