

## 14 Covering With Film

This video will show how to use kitchen wrap to cover indoor models with open framework. While I prefer attaching kitchen wrap using a glue stick, spray adhesives can produce excellent results. Due to their thinness, super ultra light indoor films require additional steps beyond what will be shown here. Detailed instructions are provided with the super ultra light indoor films.

Roll the film onto a piece of newspaper. Static electricity will keep it in contact with the paper. Use a new razor blade to cut a piece of film two inches larger on each side than the part to be covered. Smooth out any wrinkles using a brush or your hands.

Apply adhesive, either permanent or repositionable, to narrow strips of balsa or cardboard. Attach these to the long edges of the film. Lift the film using the strips and place the strips on elevated surfaces.

Before applying adhesive to the balsa structure place it upside down on the film. Move one of the strips to allow the film to sag just enough so it is in full contact with the spars and curved ribs. It might be necessary to place additional pieces of balsa onto the balsa structure to give it sufficient weight to make full contact with the film. Do not stretch the film as this will cause warps. Once satisfied with the contact of the film to the balsa structure, insure the strips will not move. Remove the balsa structure from the film. Dihedral will be added after the film has been applied.

If at all possible apply the spray adhesive outside. If this cannot be done make sure the room has adequate ventilation, meaning open windows and/or doors. Place newspaper on the surface on which the balsa structure is to be sprayed. Place paper on the floor also. The paper should cover an area 3 to 4 feet on each side of the structure. Newspaper works well for this task. If you can find a large open box to use as a spray booth, this will help contain the overspray.

It is important to test the spray pattern from the can before each use. Shake the can of spray adhesive for at least one minute if it has not been recently used. Using a piece of cardboard or stiff paper, test the spray pattern. You want a very fine mist about 6 inches wide. Hold the can approximately 18 – 24 inches from the cardboard to achieve a 6 inch width of spray or fan. Keep the can moving to one side while spraying. You want a very light coating of adhesive. Wait a minute or two and press some film onto the sprayed area to test the bond. After spraying, turn the can upside down and press the sprayer to clear the adhesive out of the nozzle.

Place the balsa structure, top surface up, on clean paper. Holding the tested, well shaken can of adhesive, make one pass over the structure, at the distance you used to produce a 6 inch fan. Move the can at the same speed you used in the test. A single pass over a balsa structure that is 4 inches or less in width, is all that is needed. Allow the adhesive a minute or two to partially dry.

Lift the balsa structure from the paper and place it on the film exactly as you did in the trial step. Add any weights if they were used in the trial step. Gently press the ribs and spars against the film to insure contact. Allow it to dry for a few minutes.

I find it easier to trim the excess film while the balsa structure is still suspended rather than trying to trim it after cutting the film away from the strips. The film can be trimmed using a new razor blade, scissors or a low wattage soldering iron. If you plan to use a soldering iron, practice on a sacrificial part.

To add dihedral place the film covered structure on a surface covered with waxed paper. If acetone based glue was used and you precut the dihedral joints, apply acetone to the glued joints at the leading and trailing edge spars. More than one application of acetone will be required. To test the joints carefully try to lift the tip rib. Once the joints become flexible, lift the tip of the wing panel to the height specified in the plans or instructions. Place a block under the tip to hold it in place while the glue dries. Any wash out or wash in can be created at this step using shims. If you did not cut the angles before covering, cut through the film and spars in order to lift the tips. Raise the tips and glue the joints.

When the tip is raised, the film near the dihedral angle will become loose, this is by no means a disaster. Spray a tiny amount of adhesive onto a piece of paper or into a container. Dip a small brush or flattened cotton swab into the adhesive. You can thin the adhesive to make it easier to handle. Gently apply the adhesive onto the film's surface at the rib where the dihedral starts. Allow the adhesive to become sticky. Use a flat dull rounded piece of balsa or plastic to gently push the excess film over the rib. Do not worry if you cannot completely tighten the film on the outside panels. This is almost more for aesthetics than performance.

If the balsa structure is made from straight strips it is easy to cover with film. Cut a piece of film larger than the structure. Place it on a flat surface and remove any wrinkles. If necessary tape or weight it to keep it in place. Be careful not to stretch the film as it will warp the structure.

Spray the structure in the same manner as previously shown. Wait a minute or two and place the structure on the film and gently press the perimeter of the structure onto the film. Allow the adhesive to dry then trim the excess film.