

# Stained Glass 101

## Hands-on Info for the Hobbyist

by Brian McMillan

### Everything You Wanted to Know About Copper Foil But Were Afraid To Ask

#### Why is copper foil used in making stained glass?

We must wrap foil around the edges of our glass pieces because solder will not adhere to bare glass. Copper was chosen because it is malleable, solders well and is inexpensive. In the late 1800's, Louis Comfort Tiffany began using copper foil in stained glass projects. His craftspersons would use scissors to cut a strip of copper the thickness of each glass piece (since all of the glass was handmade, it varied dramatically in thickness), spread molten beeswax over the foil and stick it to the glass before the wax hardened. Luckily we are blessed today with foil in rolls of various widths with glue already applied.

#### When do you use different widths of copper foil?

As a general rule,  $\frac{7}{32}$ " copper foil is used for most stained glass projects. This will provide enough of an overlap on both sides of most glass to create a strong solder seam. If the glass is thicker than usual, or a wider solder seam is desired, then a wider foil is used. Narrower foil is used for thinner glass or if the pieces are small.

#### When do I use copper backed, black backed or silver backed foil?

Originally, all that was available was copper backed foil. However, when working with transparent glass (bevels, for example), one would look through the edge of the glass to the exposed copper. This

was particularly unsightly if you were using black patina on the solder or leaving it silver. So black backed and silver backed foil were introduced to allow us to match the foil backing to the color of the solder seams. All of them are solid copper; however, the black backed foil has black adhesive and the silver backed has a thin layer of solder on the back



with clear adhesive.

If you are using transparent glass and are planning on using black patina on your finished solder seams, use black backed foil. For copper patina, use regular copper foil, and if you wish to leave the solder silver, use silver backed foil.

#### What is the proper way to apply foil?

If you are right handed (reverse instructions if you are a lefty), hold the glass piece in your right hand and with your left hand, apply the sticky side of the foil to the edge of the glass. The object is to have an equal amount of excess foil on each side of the glass. Start  $\frac{1}{4}$ " from any edge, continue around the glass until all the edges have been covered and you have overlapped the  $\frac{1}{4}$ " where you started.



Once you have completed foiling the piece rip the foil off at the corner, or cut it with scissors. Using your first and second fingers, push the foil flat against the front and back surfaces of the glass. Always push the foil towards the center of the glass piece. Using a fid, a piece of wood, a plastic pen or your thumbnail, burnish the foil down firmly.

If your foil doesn't go on with an equal overlap on each side, remove the foil as required and refoil that section. If you get a flare where you start and stop, remove the flare by trimming it off with a craft knife.

#### Is there a machine which makes foiling easier?

Yes, there are a number of foiling machines on the market. Your local stained glass store may stock a variety. My favorite is the Table Foiler from KWC Inc.

This tool dispenses, applies and crimps the foil in one easy movement. Since the glass lies flat on the table, the foil is applied evenly to the edge of



the glass. As the glass runs through the wheel, the foil is automatically crimped and all you have left to do is burnish the foil. It comes with three wheels to accept  $\frac{3}{16}$ ",  $\frac{7}{32}$ " and  $\frac{1}{4}$ " copper foil.

#### What is a copper foil overlay?

An overlay is created when copper foil is stuck to the front surface of the glass, cut to shape and then covered with solder. This is done to add extra detail to a project. Copper foil with an adhesive backing is available in sheets, which are 12" x 12". Cut a piece off the sheet which is slightly larger than what is needed for your design. Remove the backing and burnish the foil onto the glass. Draw the desired shape on the foil using a felt pen. Using a sharp craft knife cut away any excess foil and peel it away.

You can bead solder on the overlay, either before you solder your project together or at the same time as you solder the rest of the piece. If it is a large overlay, don't solder too much at once because the overlay will lift off of the glass. You will have better luck if you apply a coat of solder and let it cool down before adding another coat.



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