

Stained Glass 101

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Edging Material

by Brian McMillan



Brian has been involved in the stained glass industry as an instructor, designer, supplier, studio owner, author, and publisher for 20 years. He and his family publish a series of pattern books under the name Walrus Publications.

You can write to Brian at:

Brian McMillan
% Stained Glass News
PO Box 310
Ada, MI 49301

or send e-mail to Brian at:

Brian@SGNpublishing.com

The most common way of finishing the edge of hanging window panels is using lead came or a rigid channel such as zinc, brass or copper. Lead came comes in either a U-channel, which is best used as a border material for small panels, or H-channel, which is usually used to build lead came projects. However, H-channel is also excellent for framing stained glass panels which



are to be installed in a wooden or steel frame, such as a kitchen cabinet door. The outer part of the H-channel can be shaved down using a cheese grater type plane, available at your local hardware store. This can be especially handy if either your panel ends up too large or if your panel isn't square. Lead can be cut using a sharp craft knife, however the best tool is a pair of lead dykes. This tool is unique because depending on the direction you use it, the lead can have either a flush or beveled edge. Other tools you find around the house may look the same, but they will most likely not leave a flush cut on the lead.

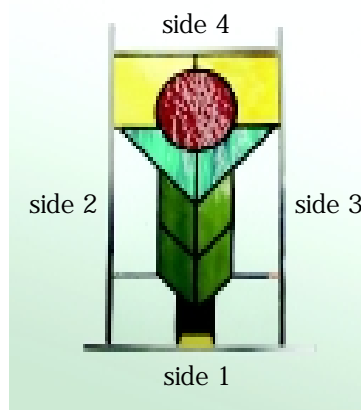
Lead must be stretched before you use it. Most lead stretches about an inch or two over a 6' length. Stretching will leave the lead perfectly straight. The best way to do this is to buy a lead vise. It works like a boat cleat—as you pull on the lead, the vise grips tighter. Place one end of the lead into the vise, which is attached to the edge of your worktable, grip the other end of the lead with a pair of pliers and pull. You should be able to feel when the lead has been stretched sufficiently. The first 1" to 2" will pull easily. When you feel the lead stiffen, **stop pulling**. If you continue pulling, the lead will break either at the vise or in the pliers.



Lead does melt, so it is important to know how long you can hold the hot iron on the lead before this happens. Before soldering, test solder two scrap pieces of lead together. Always wipe your soldering iron tip on a wet natural sponge to cool the iron down before you solder the lead. If your iron is still too hot, you may have to buy a temperature control so you can keep your iron at a lower heat. Get a drop of 60/40 solder on your iron tip, place the solder on the spot where the lead joints meet, count 1, 2, 3, and lift the iron straight up.

Applying Lead Edging

Choose a U-lead. U-lead comes with round or flat edges and different widths. I prefer lead with a $\frac{3}{16}$ " or $\frac{1}{4}$ " channel depth. Cut the lead for side 1 (see photo at left) two inches longer than your glass. Push the lead onto the edge of the glass while holding it up in the air then push it against a board nailed to your tabletop so that it goes on straight. If your glass edge is crooked, try to use the lead to disguise some of the imperfections. If your glass edge is really bad, remove the foil and grind the glass edge straight. If your glass is thicker than the lead, use a fid or lathekin (available at stained glass stores) to open the channel so that the glass slides in more easily. Sometimes it is easier to make the edge of the glass narrower by grinding it at an angle to eliminate this problem.

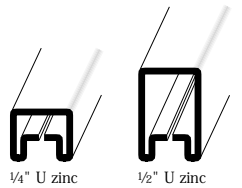


Solder the lead to the solder seams wherever they touch. Whether you are going to apply lead or zinc, do not solder your copper foil seams any closer than $\frac{1}{4}$ " from the edge so that the came will slip on easily.

Cut a piece of lead one inch longer than side 2. Place the clean-cut edge of the lead against the lead on side 1. Solder the two leads together and at each solder seam. Do the same on side 3. Cut side 4 to fit the space between sides 1 and 3 and solder in place. Cut all excess lead flush at the ends. Solder all joints on the back of the panel and fill the holes on the ends with solder.

Applying Zinc, Copper or Brass Edging

Zinc, brass or copper came is used for framing free hanging panels which are larger in size, but not exceeding 4 square feet. The advantage of using zinc, brass or copper came is that it is much stronger and the rings can be attached anywhere you wish on a smaller panel and it won't stretch. I use a regular power miter saw with a blade with at least 150 teeth to cut this material, however there are saws that are made specifically for this purpose. They will have either a metal or fiberglass reinforced blade. (Check with your supplier to see which brand they carry.) Morton Glass Works makes an inexpensive tool called the Clean Cut, which holds the material firmly in place so that you can make 45° and 90° cuts using a standard hacksaw. Since zinc doesn't accept black patina very well, I paint it using a foam brush and soft gloss exterior latex paint.



To use zinc, brass or copper edge material, miter the corners at a 45° angle. In this photo, you will see how I use two 2" scrap pieces of zinc with opposing 45° miters on the ends to line up the channels and mark it for cutting. Use masking tape to hold the material in place until your soldering is complete. Solder the material on all four corners as well as at every solder seam on both sides.



Hanging Hardware

Whichever material you use, you will need to solder on hanging rings if you want to hang your panel. Ready-to-use rings can be purchased at most stained glass shops in different sizes. It is easy to make your own using 14 to 20 gauge pre-tinned copper wire. Twist the wire around a Fid'l stick (available at your favorite stained glass store) or a dowel and then cut it to make round rings.

When attaching rings to a lead came border, remember that they should be soldered to the back seams of your panel at a spot where the copper foil seams are attached to the border to prevent the lead from stretching and pulling away from the panel.

Happy Crafting,

Brian

