

## **Rebar 101**

*by Vic Rothman*

There is a lot of debate about rebaring. I will attempt to clarify what rebar is and how it is used. The term rebar means different things to different people. The round (sometimes square) bars you see in church windows are actually called saddle bars. The bars are set into holes drilled into the window sash (removable window frame) or window frames (non-removable). The windows have ties soldered to them at the solder joints. In olden days they used lead as ties, today it's copper wires. These ties are twisted around the saddle bars. The purpose of the saddle bars is to prevent the windows from being blown into the building, not support. At one time stained glass was a real window out in the weather. The ties should not be made very tight, but should be about one twist loose, thus the window can move in the wind. These bars are normally across the shortest distance.

Next is flat rebar soldered directly to the stained glass. These bars are sometimes drilled into the sash and frames, or just run full length of the stained glass and put under moldings. These rebars act like the saddle bars, but because they are soldered in place they also prevent the window from deflecting near the bars. They will not hold up the windows.

Now we have real rebar. This can be thin brass strips referred to as "fins", sizes range from 1/4" to 1" wide and about 1/32" thick. They are bent to conform to the lead or solder lines of the windows and are run in every direction. Last year I worked on a Tiffany window made about 1920 that was 4' x 9 1/2' (it took 5 people to move it) the back was a maze of fins and the window was perfectly flat. In copper foil window these fins can also go between the glass during construction. But as with any flat rebar the strength goes from the width not just the thickness of the metal. Thus a 1" wide bar is stronger than a 1/4" bar.

Rebar traditionally goes on the inside, because you do not want rain, snow etc getting on and corroding the bars if there were outside. If there is outside glazing you can put the rebar on the rear.

The placement of rebar is not rocket science. It is very logical. You put them perpendicular to a lead line that might fold. Parallel lines, glass borders, concentric circles etc. In large windows you may need rebar running through the center to prevent the window from flexing. Rebar is VERY design and window location dependent. The size of the window does not matter. You can have a 12"x12" window that needs rebar and a 3'x3' that does not. If you design the lead lines well you need less rebar. As for seeing the rebar get over it. Rebar is part of stained glass construction. If done right it should not detract from a good looking window.