



# design TOSCANO®

## Tiffany-Style Stained Glass Windows

### Thank you for your purchase!

We hope you enjoy your stained glass window as much as we enjoyed creating it for you! The following recommendations are offered to help ensure that your stained glass purchase will provide you with years of enjoyment.

### The Mystery of Glass

Glass is a sparkling, jewel-like substance made from ordinary materials: sand transformed by fire. It captures the light, glows from within, and is colored by adding metallic salts and oxides. Minerals within the glass create a spectrum of color from white light.

Please remember that this is a hand-crafted product, and variation is not only to be expected, it is one of the hallmarks of the way we make glass. Folds, ripples, and other textures are artistically added using rollers, while “seeds” (bubbles) are incorporated by introducing water to the molten glass. These details provide each Design Toscano window with its own individual flair.

### The History of Stained Glass

The origins of stained glass windows are lost in history, probably originating after jewelers began using similar glazing techniques in their work. By the 10th century, intricately designed windows were found in many English, French, and German churches.

### The Birth of the Tiffany Method

Louis Comfort Tiffany was drawn to great beauty and art of all kinds, especially the magnificent stained glass windows of European cathedrals. Creating stained glass that would be available for American homes became his goal.

In the middle ages, artisans created intricate windows using hand-fired glass, fusing painted colors to the surface, then piecing them together using lead came (channeled pieces of flexible leading).

Tiffany wanted to use the natural beauty of his pieces for it to appear as if he were painting with glass. To achieve the level of detail wanted, he devised a method of assembling the pieces without the lead came. He wrapped each individual piece of glass with strips of copper foil. The foil-wrapped pieces were assembled and then soldered together.

The results of Tiffany’s innovation were breathtaking, and in the early twentieth century Tiffany windows began to adorn homes of the American upper class.

*“True art is ever progressive and impatient of fixed rules. Because a thing has always been done in a certain way is no reason why it should never be done in any other.”*

—Louis Comfort Tiffany

### The Tiffany Method: The Modern Copper-Foil Technique

Below are the steps of the copper-foil method:

1. A full-sized “cartoon” pattern is developed.
2. Each piece of glass is cut to match the pattern exactly.
3. The edges are ground smooth, usually with an electric grinder.
4. The pieces are carefully cleaned and dried, removing any oil or dust.
5. Each piece of glass is wrapped with copper foil.
6. Each piece should fit the pattern exactly and is temporarily held in place with pins.
7. Flux and solder are then used to “solder-tack” the intersections of each piece.
8. The copper foil is completely fluxed and solder is carefully applied to both sides.
9. A “bead,” or rounded line of solder is then added to the joints on both sides.
10. The outside edge is framed using U-came, and hanging rings or brackets are added.
11. Traces of flux are carefully washed away and the pieces are left to dry thoroughly.
12. A patina is applied, then re-washed and dried once more.
13. Finally, carnauba wax is used to polish the soldered joints and the glass.



**Bevel:** Cut and polished edge usually on plate glass at an angle other than 90°.

**Cartoon:** The name for the working drawing for a stained glass design, which contains all the cut lines.

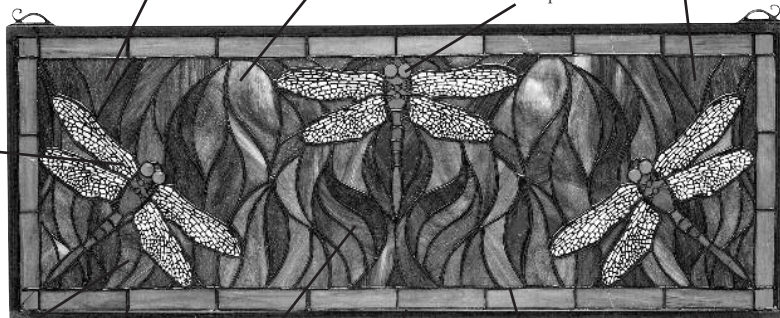
**Rolled Glass:** Sheet glass formed by a roller flattening the glass into sheets.

**Bubble:** A pocket of gas trapped in glass during manufacture, such as “seeds”: minute bubbles of gas, usually occurring in groups, sometimes called seeded glass.

**Glass Cabochons (Jewels):** Thick, free-form rounded pieces of stained glass in various sizes. Often used to replace smaller round pieces in a design, such as grapes in a cluster, a flower center, or to add dimensional interest to a piece.

**Rolled Edges:** Generally found on sheets where the edges have smoothed over and bulge somewhat from the surface.

**Filigree:** Generally made of brass, they are designs or flat strips used as decorative edges or appliques.



**Ripple Glass:** Machine-rolled glass; the rippled texture of which is imprinted from the roller.

**Solder:** The mixture of metals, most often tin and lead, used to hold copper foil and leaded glass together.

**Art Glass:** Several types of glass with newly developed textures (glass with an impressed pattern in the surface, creating unique light patterns), shaded colors or casing.

**Patina:** Chemical solutions applied to the solder or lead to create a different color.

**Copper Foil:** The technique of joining pieces of glass where foil is wrapped around the outside edge of each glass piece. Pieces are butted and solder is melted over the exposed foil surfaces, causing the foil-covered glass edges to become joined.

**Glazier's Lead Came:** An extruded product made into channels to accept and hold the glass to shape.

### Cleaning Stained Glass Windows

Eventually, dirt, soot and grime may build up on the glass from pollution, smoke and oxidation. These deposits reduce the amount of light passing through the windows, giving them a dull, muted appearance.

Cleaning the window will restore it to its original appearance. The first attempt should be with plain water. If plain water doesn't work, try using a non-ionic detergent.\* If this method doesn't work, try a stronger solution. Stained glass can be cleaned with acetone, ethanol, isopropyl alcohol or mineral spirits to remove shellac, varnish or stain.

After cleaning, be sure to remove all chemical residue with a non-ionic detergent and thoroughly rinse off with clean water.

Please remember, a little maintenance and care will keep your stained glass investment beautiful for many years to come.

\*If you aren't sure whether or not your glass piece is painted, do not use anything stronger than plain water.