ABOUT YOUR STAINED GLASS

Thank you for your commission and congratulations on your new heirloom stained glass. It has been a true pleasure to make this piece for you, and I hope it brings years of enjoyment as it brightens your space. Here are a few things to know about your glass:

THE GLASS ITSELF. The glass used in your piece is known as art glass and sourced from the finest manufacturers in North America. To make their glass, a recipe of ingredients is fired to roughly 2100°F, colored by hand, and then passed through a roller to emboss a texture and uniform thickness. The end result is a single sheet of glass roughly 24-32" wide by 42-48" long. As a handmade material it is naturally imbued with some imperfections such as bubbles, creases, color variations, and tool marks that are indicative of the human touch. Rest assured that none of these imperfections undermine the integrity of the glass, and should be viewed as one of the many elements that make your handmade piece unique.

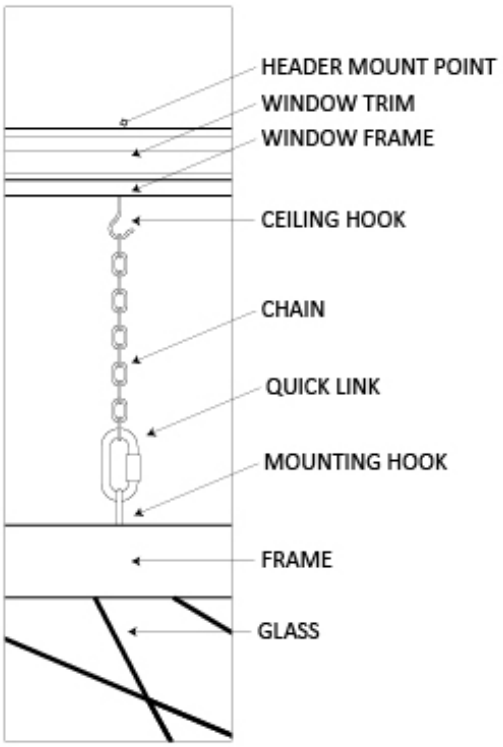
THE ASSEMBLY PROCESS. Your glass is made using the copper foil method, which was patented by Stanford Bray in 1886 and mastered by Louis Comfort Tiffany in 1895 when he started manufacturing his famous lamps. The Tiffany name should sound familiar as Louis was the son of Charles Tiffany, founder of the jewelry company Tiffany & Co., which Louis inherited in 1902.

The copper foil method involves wrapping the edge of each piece of glass with an adhesive copper foil. After the glass pieces are foiled and arranged, thick copper reinforcing strips are set perpendicular to hinge points (long continuous lines) to reduce the risk of the piece sagging over time. 60/40 solder (60% tin and 40% lead) is then melted along the copper seams to join the panel together. I assemble your piece face down and solder the backside first so that the variations in glass thickness are invisible from the front. Once the back is soldered, I frame the piece with a ½" wide zinc channel that provides structural rigidity and a clean border that can stand alone or be mounted into a frame. To maximize the strength, I connect every solder line directly to the zinc frame, making the panel one continuous piece. The glass is then flipped, and the front side soldered. I then clean the glass of any residue from the soldering process with a product called Kwik Clean, which also helps prepare the solder for the patina. The patina process uses various types of acid to change the color of the solder and zinc. I patina the zinc to a matte black, and the lead to a pewter silver, which darkens the metal while retaining some of its deep silver brilliance. The entire piece is then polished with a high-quality car wax. As a final touch, I etch my signature and the date of creation into the zinc frame to guarantee the piece's authenticity in the event it is ever reframed.

THE FRAME. Your frame is handmade from solid hardwood rough sawn into one-inch-thick boards. These boards are planed and laminated together to improve dimensional stability, and then milled into the specially designed profile that holds your glass securely in place. The frame is assembled around the glass with two countersunk finish carpentry screws at each corner. The mounting hooks are attached to the frame with two screws for maximum hanging strength. The hooks are located to ensure your piece hangs perfectly vertical when hung from chains or so that it is easily leveled when hung on a wall.

THE BACKLIGHT. The color and texture of your stained glass is best appreciated when illuminated by direct sunlight. However, the intended location for your piece may not allow for sunlight, which is why I offer a LED backlight option. The backlight fixture is a warm temperature continuous LED tape light with an adhesive backing adhered to the inside perimeter of your frame. Since the light source emanates from the perimeter the outside edge of your glass will appear somewhat brighter than the center. This backlight method is specially designed to keep the frame thinner than other methods and gives you the freedom to later move the piece to a window by removing the backing. The backing prevents light leaks and ensures an accurate color resolution for your glass, but it is not structural and can be removed

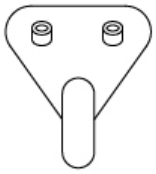
The LED fixture includes a remote-control dongle installed in line with the power adapter. The remote dongle is required to dim the light, but can be removed should you elect to hard wire the fixture to a wall light switch. Make sure to use a qualified electrician if you choose to do this.



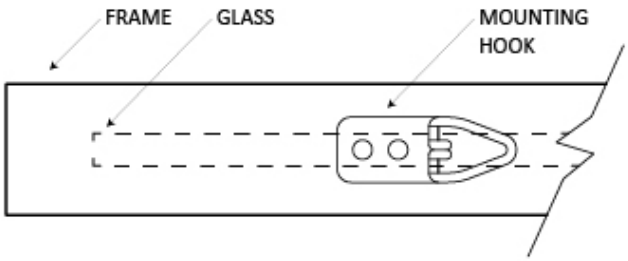
HANGING YOUR GLASS IN A WINDOW. When it comes to hanging in front of a window the more direct light you can give the piece the better. Direct sunlight highlights the texture of the glass and its color. South or west facing windows are ideal. If you did not opt for a backlight, the frame's mounting hooks will be located on the top of the frame.

Hang your piece with two individual chains located directly above the hook. Make sure to use hardware (quick links, chain, and ceiling hooks) rated for a safe working load of at least 25 lbs. This will ensure the piece can be supported by a single chain in the event one chain fails. DO NOT use cup hooks, jewelry chain, or carabiner hardware, and never span a single chain between the mounting hooks. The chains should be assembled as shown here by using a quick link to connect the frame hook to the chain and a ceiling hook to hold the chain. The ceiling hook should be screwed into the window frame or the window header. DO NOT screw the ceiling hook into drywall alone as it will quickly fail. The hook must be screwed into solid wood.

HANGING YOUR GLASS ON A WALL. If you opted for a backlight, the two mounting hooks will be attached to the back of the frame at the same point on either side. You will need two double nail picture hangers like the one show here. It is essential that you use the double nail design for its higher weight capacity. These hooks will be sufficient to hold the piece when nailed directly into the drywall. Use a spirit level and tape measure to ensure the hooks are nailed into the wall directly behind each mounting hook. DO NOT add a hanging wire between the mounting hooks.



HANGING YOUR GLASS OUTSIDE. DO NOT hang your piece in an exterior location. The copper foil method is intended for interior environments only. Outside temperatures and exposure to weather can weaken the joints and cause copper foil glass to fail. Exterior stained-glass windows use the lead came assembly method, which is better suited to withstand wind, rain, and high temperatures. I am happy to work with you on another piece using the lead came method if you would like a piece to go outside or replace an existing window.



RELOCATING YOUR PIECE FROM A WALL TO A WINDOW. If you decide to move your glass from a wall to a window you will need to move the hooks from the back of the frame to the top of the frame. Orient the hooks along the long axis of the frame with the screws towards the end of the frame as shown below. The hooks should be placed in plane with the glass and approximately 3-5” in from the corners. Holes for the mounting hooks must be pre-drilled, and if new screws are used make sure they are the same size as the original so they don’t impact the glass.

CARE AND MAINTENANCE. Stained glass, like bronze or wood art, may require occasional care and maintenance. Here are a few pointers to care for your new work.

1. CLEANING. Never clean your glass with Windex or other traditional window or surface cleaners. I recommend using Kwik Clean, which is available on Amazon. It is made specifically for stained glass and will clean both the glass and solder of grease, contaminants, and solder oxidation (referred to as white mold by stained glass artists, but rest assured it is not actually a mold). To protect your frame’s finish, spray Kwik clean onto a paper towel or soft rag and gently clean the glass. DO NOT apply pressure to the glass without supporting the opposite side. To support the glass, remove the backing if necessary and lay the glass flat on a folded bath towel that evenly supports the entire surface. Cleaning should only require light pressure.

2. BUFFING. Lightly buffing the solder with a soft microfiber towel can help restore the solder's shine if it begins to tarnish. If you find that the solder is starting to tarnish more quickly, it may be time to reapply the protective wax coating.
3. WAXING/POLISHING. You can polish your glass every few years to renew the solder's protection against tarnishing and restore the solder's brilliance. This also helps prevent dust from sticking to the glass. As with cleaning, do not wax the glass without the backside of the glass supported. You do not need to remove the piece from the frame, but you should be careful not to get wax or polish on the wood. Any high-quality car wax can be used by following the manufacturer's instructions, but I recommend using "Nu Finish: The Once a Year Car Polish" (available online or at most auto parts stores). Nu Finish is a liquid that protects like a traditional wax without containing the normal carnauba ingredients that break down in UV light so it will protect your piece much longer than a normal wax. Apply the wax you choose to the entire surface of the glass and solder, but be careful not to apply too much because it will only make it harder to buff and clean. Once it has hazed over, remove the haze bring the piece to a shine by buffing with a soft microfiber towel. Q-tips or a soft horsehair shoe polishing brush can help remove dried wax from tight corners, small pockets, and the edges of the glass. Work carefully and always tray to move the cloth, brush or Q-tip parallel to the solder line to avoid damaging the foil beneath the solder. Sunlight will help reveal any last bits of wax you may have missed. One last light buff with a clean microfiber towel will bring the piece to its highest shine.
4. STORAGE AND SHIPPING. Your piece should be stored vertically at all times. If laid flat, the back side of the glass must be supported. This will reduce the stress of gravity on the joints and and the risk of the glass breaking or sagging. You can protect the piece from dust by covering it in a clean bed sheet.

   It is recommended to keep the original packing material and crate that your piece arrived in just in case you need to pack the piece again later. If you don't keep the material, wrap the piece in a sheet or a piece of thin foam (1/8"), then layer thick cardboard that is cut to the interior size of the glass until it is even or slightly proud of the surface of the frame on both sides. Then sandwich the entire piece in thick cardboard and use packing tape to keep the cardboard firmly in place. Then use a generous amount of bubble wrap to protect the entire piece. Set the bubble wrapped package into a mirror pack or TV shipping box and fill any voids with packing peanuts or air cushions. DO NOT apply tape directly to the glass or frame.

Thank you once again for commissioning this piece. I hope you found this information useful and it helps you understand and care for your piece. Please don't hesitate to contact me with any questions or issues you encounter in the future at (303) 921-4709 or scott@scotthook.com.