

GLASS PATTERNS

— Q U A R T E R L Y —

Winter 2016

Volume 32 • No. 4

Wildlife Issue

Stained Glass

Owl Motif

Sweet Manatee Panel

Double-Wheel Kaleidoscope

Offset Alignment Technique

Mosaics

Bluebird Plaque

Fused Glass

Frit Slurry

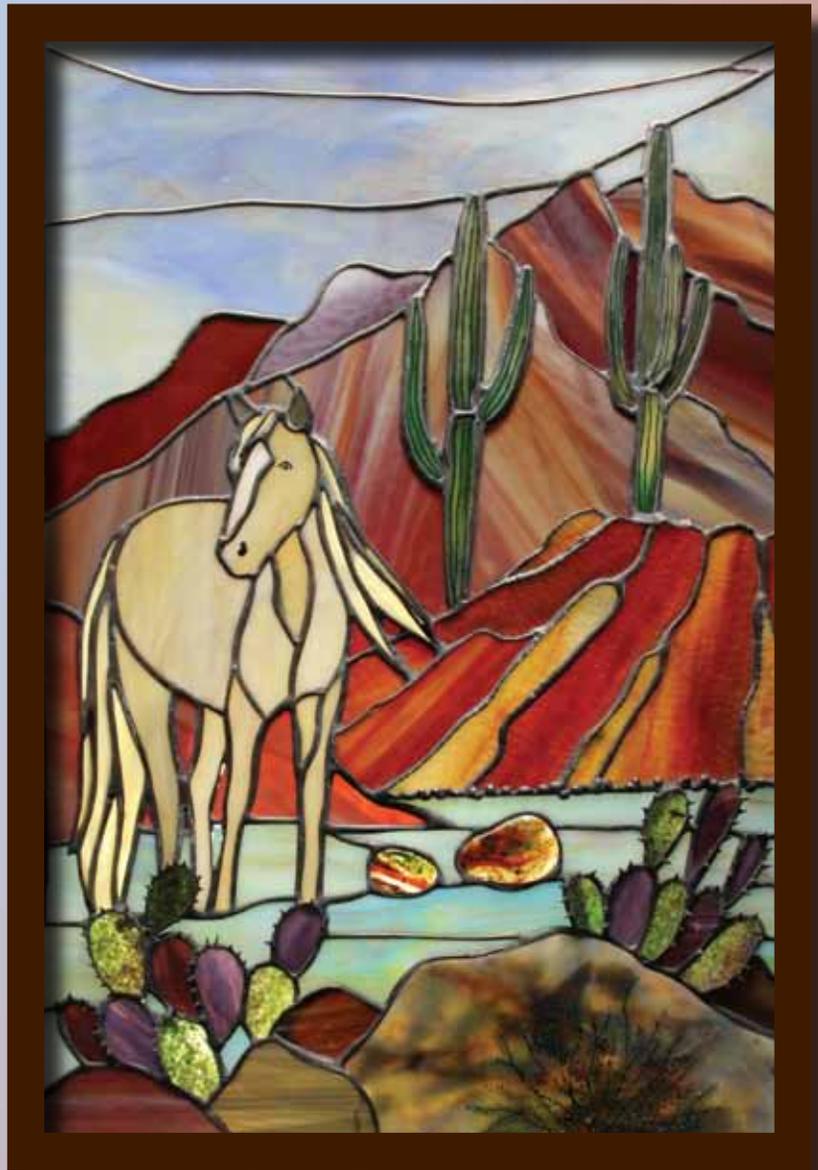
Scrap Melt Hearts

Winter Crocus

Painted Candle Shield

Photography

Intro to Photoshop



Volume 32 No. 4

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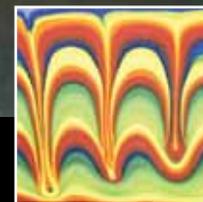


www.GlassPatterns.com

DON'T MISS Our 16-Page Pattern Sheet

Pro Series

Artist Patty Gray demonstrating Combing at Pacific Artglass in Gardena, CA



The Artist

Patty Gray was introduced to glass blowing in 1973. She and her husband built their first glass-blowing studio in 1975. Together they have been producing architectural fused/cast glasswork for installations in major hotels, public buildings and private residences for over ten years. Patty is constantly on the road sharing her knowledge of fusing in workshops all over the world. To see more of Patty's work visit:

www.pattygray.com

Combing

Combing is a technique used to distort patterns in molten glass for interesting effects. Typically a tile is made of fused, varied-color strips of glass and heated to a point where it is soft enough to "comb" with stainless steel rods. The piece can then be blown into a vessel using a process called "a pick up" like the piece shown here. For more information on combing visit:

www.glasskilns.com/proseries/combing



The Kiln

The GM22CS commonly referred to as "The Clamshell" is particularly well suited for combing because of its easy access design and the fact that a tilt switch cuts the power to the elements whenever the lid is opened to prevent electrical shock. For more information on the GM22CS visit our website at:

www.glasskilns.com



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From the Editor

You Like Us

As an adjective in the English language, the word *like* has taken on a whole new meaning with the emergence of the social media platform on Facebook. Folks who participate in online forums and fan pages know that by “liking” something, they are showing support for a photo, concept, or phrase without leaving a comment. Getting a good number of “likes” means a photo or a statement holds some popularity or solidarity.

Facebook forums are a wonderful way to enjoy the work of fellow glass artists from all over the world without leaving the comfort of your favorite chair. This really has changed the way that artists of all kinds can celebrate their work that they typically produce in remotely located workshops.

With all of the ups and downs of the glass industry, one thing remains the same—the love and enthusiasm for the beauty of glass. *Glass Patterns Quarterly* continues to monitor and support many of the online blogs composed of a variety of glass genres. We appreciate that you are fans of our online presence as well. Nothing gives us more pride and joy than when we see one of our featured patterns in the finishing stages on your workbench uploaded to Fused Glass Fanatics, Stained Glass Addicts, Fans of Chantal’s Patterns, Glass People, and many other glass art forums. I have come to the undisputed conclusion that you like us!

As a part of this mutual admiration club, *GPQ* loves to promote the latest ideas as well as emerging artists. We like to keep the fire burning and represent what is happening now in stores, decor, and trending techniques. Maintaining an online presence is one way that we can peruse innovative artists for project features and requests, so keep up the good work. We are always looking for fresh work to feature in our magazine and to feature on Glass Expert Webinars™.

Be sure to follow our *Glass Patterns Quarterly* page on Facebook for updates regarding the latest Webinars and seasonal features of past and present magazine projects. I continue to see an abundance of *GPQ* published patterns posted via the glass enthusiast forums. Feel free to tag #glasspatternsquarterly if you are working from one of our patterns.

Last but not least, we hope you enjoy our 2016 Wildlife Edition. It’s clear that Mother Nature and her creatures offer an unlimited array of designs that can be perfectly captured and enhanced with the luminous colors and textures of the mysterious property we call glass. Enjoy all the furry warmth that this issue has to give.

Happy Glassing,

Delynn Ellis

Delynn Ellis

Managing Editor



Lynx by Jean Beaulieu

Upcoming Submission Deadlines

Spring 2017	<i>Glass in the Garden - Glass Flowers, Planters, Birdbaths, and Garden Art</i>
Editorial	December 1, 2016
Ad Closing	January 20, 2017
Ad Materials	January 30, 2017

Summer 2017	<i>Slice of Summer - A Nostalgic Look at Scenes of Summer Past and Present</i>
Editorial	March 20, 2017
Ad Closing	July 20, 2017
Ad Materials	July 30, 2017

Glass Patterns Quarterly

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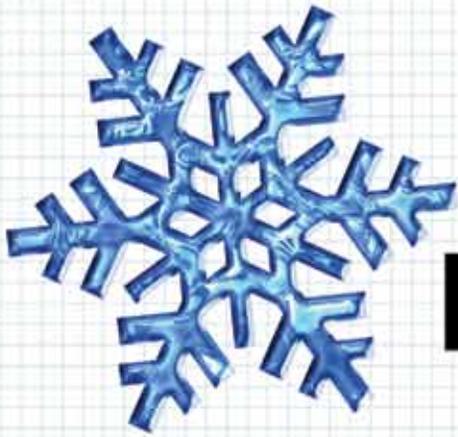


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Sweet Manatee

Mythical Mermaid of the Sea

Design, Fabrication, and Text by Leslie Gibbs

Photography by Jon Gibbs

Sailing near the Dominican Republic in 1493, Christopher Columbus reported sighting three “mermaids,” about whom he rudely observed as being “not half as beautiful as they are painted.” Well, old Chris had been at sea for six months, so perhaps mistaking the gentle, slow-moving mammals we know as manatees for mermaids was an honest mistake. However, although the manatee is a distant relative of the elephant, most portraits of mermaids do not depict the lovely half woman/half fish as creatures that can grow to 13 feet in length and weigh up to 3,500 pounds. No photoshopping that disparity!

Manatees are often seen in Florida lounging in shallow, calm rivers, springs, and canals, where visitors and locals are delighted to watch these gentle giants surface for a breath of air. One such visitor was Peggy Gilvary who, while visiting the Florida Keys with her family, spotted one of these roly-poly herbivores. She was instantly charmed by this “lady of the sea,” so much so that Peggy gave the manatee the name Sweet Girl. As the Christmas holidays approached, Peggy’s son John asked me to design and fabricate Sweet Girl in stained glass as a gift to his mother so she would be able to relive that magical encounter anytime she chooses.



Armstrong Glass Company

0044CR Clear/Aqua/Streaky/Cobblestone/Iridescent for Water

at Top of Lagoon and Water Layer 3, 6" x 12"

44SO Aqua Opalescent for Water Layer 5, 6" x 10"

1462S Opal/Caribbean Blue/Aqua/Amber/Streaky for Sandy Bottom, 8" x 11"

Bullseye Glass Co.

Sheet Glass

1417 Emerald Green Iridescent for Water Layers 2 and 4, 6" x 10"

0116 Turquoise Blue for Water Layer 6, 6" x 10"

0132 Driftwood Gray for Face, Snout, and Top of Left Flipper, 4" x 6"

0206 Elephant Gray for Right Flipper and Underbody, 12" x 12"

Frit (optional)

0116 Turquoise Blue, 1/4 cup

1429 Light Silver Gray, 1/4 cup

0100 Black, pinch

Spectrum Glass Co.

I/387-2S Gray/White for Left Flipper Bottom and Top of Body, 4" x 8"

Tools and Materials

Fine-Tipped Artist Brush

Fat-Tipped Brush (optional)

3/16" Silver-Backed Copper Foil

Craft Glue X-Acto® Knife

1/2" Zinc Framing Horseshoe Nails

Aluminum Braces and Pins (optional)

Black Hobby Enamel Black Patina

Hanging Hooks (optional)

Kem-O-Pro Polishing Wax Soft Cloths

Flux Flux Remover 60/40 solder

Fusible Glass Paints (optional)

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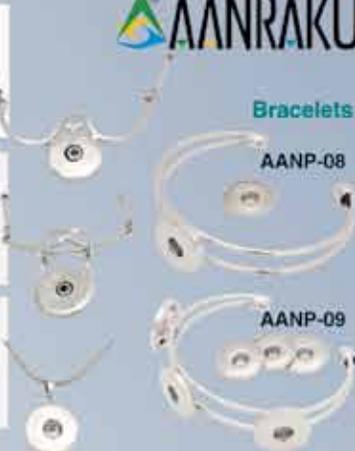


Necklaces



AANP-01
AANP-02
AANP-13

Bracelets



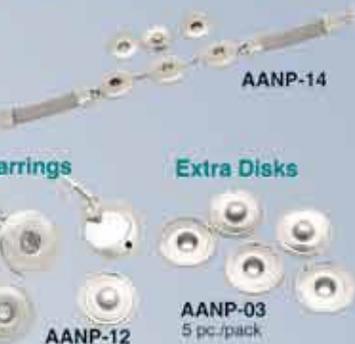
AANP-08
AANP-09

Ring



AANP-10
AANP-11

Extra Disks



AANP-12
AANP-03
5 pc./pack

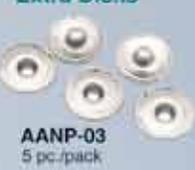
Pendant (without chain)



Earrings



Extra Disks



AANP-03
5 pc./pack

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A. SMT Short Mandrel
B. RMT Round Top
C. FMT Flat Top
ITEM# **STAINLESS STEEL**
A. SMT-SS Short Mandrel
B. RMT-SS Round Top
C. FMT-SS Flat Top



KEY HOLDERS



A. KH Original
B. RKH Round
C. FKH Flat



AANP-05
24 pc./pack

DISPLAY STAND for Glass Beads



SPBSB
1.5" W x 3" H



TEA SERVER

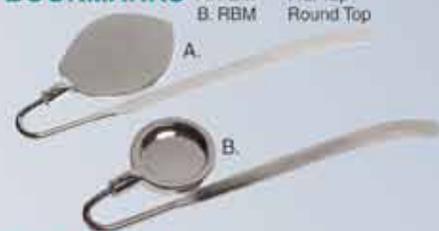
TTT2 Tea Server
TTT1 Extension Kit



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SQBL 9.5" Sq., Glass Size 8"
SQBM 7.5" Sq., Glass Size 6"
SQBS 5.5" Sq., Glass Size 3 1/2"

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B. RBM Round Top

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Heart Bails



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SHBL Medium
SHBL Small
ITEM# **.925 SILVER**
GHBL Large
GHBL Medium
GHBL Small

Earring Bails



ITEM# **SILVER PLATED**
SEBS Large
SEBS Medium
SEBS Small
ITEM# **GOLD PLATED**
GHBL Large
GHBL Medium
GHBL Small

Pattern Bails



ITEM# **SILVER PLATED**
A. SPBL-H Hexagon
B. SPBL-H Hashmark
C. SPBL-L Leaves
D. SPBL-T Tortoise
E. SPBL-W Waves
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New Design Bails



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1

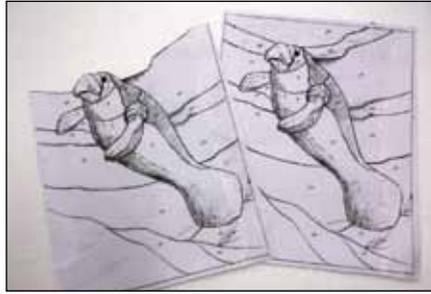
Create the design.



After a few rough sketches, I decided to position the manatee as if she is rising to the surface for air. I tightened up the artwork as I considered shading and cut lines for the final 12" x 15" design.

2

Make two copies of the design, one to cut out and one for layout, and number each section on both copies of the pattern.



Cut out all of the glass, reversing some of the pieces for the sandy bottom to create contrast.

3

Grind and clean each piece of glass.



Note: The manatee is a slow-moving critter, and often its thick, wrinkled skin is shaded with a growth of algae or barnacles, which become a delightful treat for tropical fish when the manatee passes by. I chose to illustrate this shading with the use of frit. However, this is totally optional. If you choose not to do this, forge ahead to step 8.

4

Test-fire the frit.



Frit is the perfect way to show both the shading of the manatee and the algae that often grows on the back of the mammal. Before choosing the right color and size frit, however, I did a few test firings, after which I chose a mixture of blue and gray frits.

Be sure to always wear a respirator mask or other form of protection any time you are working with frit to avoid inhaling any glass particles.

5

Use a dry paint brush to lightly stipple craft glue onto the glass.



This will give a more natural appearance for the animal's hide. For the eye, use just a dot of glue and some black frit on the piece of glass that will become the manatee's face.

6



Mix the frit colors and sprinkle the frit mixture onto the glass.



I mixed together some Turquoise Blue and Light Silver Gray frits for the snout, lower body, and left flipper. Sprinkle a layer of frit over the wet glue and let it set until the glue dries. When the adhesive is dry, brush off the excess frit.

7

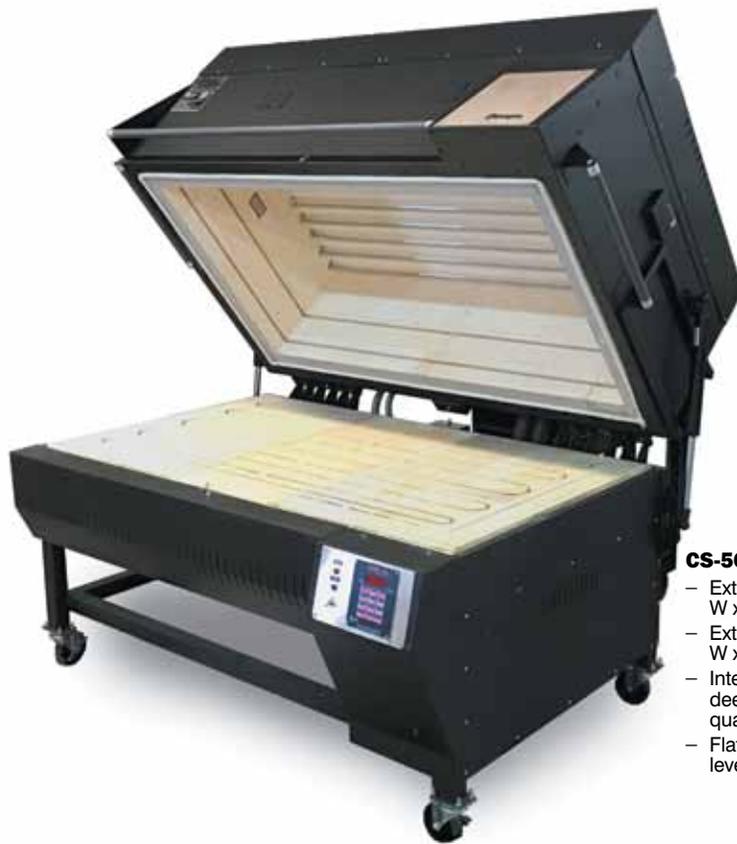
Place the sections with frit applied into the kiln.



Vent the kiln until a temperature of 1000°F is reached, then close the kiln and let the temperature ramp up to between 1350°F and 1375°F. Monitor the progress of the firing, since all kilns are different.

Whether you want the frit to be fully fused onto the glass or appear a bit bumpy is up to you. I prefer a slightly bumpy look in this case. Once you are satisfied with the look of the frit, turn off the kiln and let it cool to room temperature.

Note: At this time you can also add the details or wrinkles using fusible glass paint and fire both the paint and the frit together.



CS-5630 Dimensions

- Exterior with top closed: 70 1/2" W x 53" D x 52" H
- Exterior with top raised: 70 1/2" W x 63" D x 76" H
- Interior: 56" x 30" x 17" (15 1/2" deep when measuring from quartz tube surface)
- Flat load floor, 30" from ground level

Introducing the Paragon CS-5630 clamshell kiln with quartz tubes

Deluxe quartz tubes

Imagine the huge glass pieces you could make inside the new Paragon CS-5630. Enjoy complete access to your artwork from the sides and front. Add delicate stringers or frit without having to move the shelf into the kiln later.

The roof elements are protected in 10 quartz tubes for a cleaner kiln interior. There is less dust in the kiln, because there are no element grooves in the top.

Heat from the top, walls, and floor

The CS-5630 is 56" x 30" x 17" high. With elements in the floor, walls, and roof, you will enjoy unsurpassed heat distribution. The digital controller uses Power Ratio technology to vary the heat output between the top and bottom elements.

Extra insulation and woven gasket

Lift the kiln top section with handles in the front and sides and with assistance from gas springs. The roof is 3" thick ceramic fiber, and the walls are 3" firebrick backed by 1" of ceramic fiber board (4" of total wall thickness). The extra insulation helps to maintain even temperatures. A woven gasket between the kiln top and floor helps to hold in the heat. The floor

surface is a convenient 30" high from ground level. The 4 1/2" thick firebrick floor includes two expansion joints.

Watch the glass through 2" x 3" peep-holes mounted in the left and right sides. The kiln includes locking casters.

Motorized vent for firing molds

If you fire molds, you will welcome the motorized Orton Vent Master, which is mounted in the back wall of the kiln. The vent, mounted on rubber isolators to prevent vibration, removes moisture from the kiln to reduce rust. The vent is standard on the CS-5630 and plugs into an auxiliary output in the back of the kiln. This allows you to turn on the vent through the digital controller.

Low maintenance

Deluxe, long-lasting mercury relays are standard. Gain convenient access to the electrical components by removing a single panel. The kiln includes access panels for replacing quartz tubes.

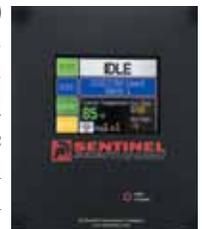
Rugged

The CS-5630 is the very picture of ruggedness. A ledge in front of the kiln protects the brick floor from damage caused by leaning into the kiln. The digital controller is mounted away from the

heat for long life. The kiln base is welded from 2" x 2" steel tubing; the upper kiln frame is welded from 1" x 1" steel tubing.

Optional touch screen controller

Order your CS-5630 with the optional Sentinel Smart Touch controller. The Sentinel can check the voltage and amperage and can be programmed with easy-to-follow screen descriptions.



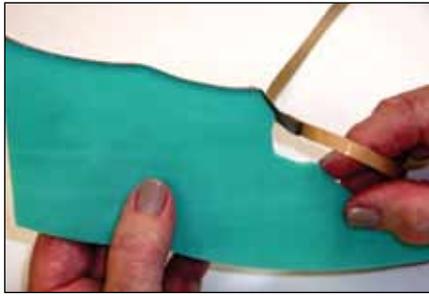
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Foil all sections of the glass.

8



Brace the entire panel with metal strips or horseshoe nails and apply flux in preparation to solder.

9



Solder the front of the panel, flip it over, add more flux, and solder the back of the panel.

10



Remove the excess flux with flux remover.

Cut zinc strips to fit the panel and brace them in place with horseshoe nails.

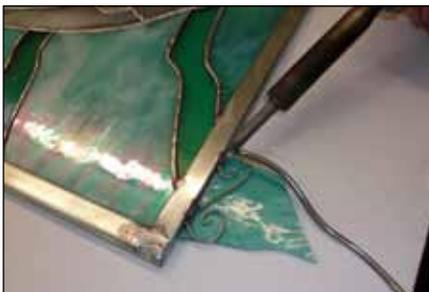
11



Flux the corners of the zinc and anywhere that the zinc touches a solder line. Solder the zinc, then flip the panel over and solder the back of the panel. Clean the panel well to completely remove the flux.

Add decorative hooks to both sides of the panel's top.

12



Use a section of scrap glass to support the hooks, apply flux, and solder the hooks in place. Clean off the flux.

Apply patina to both sides of the panel, including the zinc and hanging hardware.

13



Clean the excess patina from the panel and let it dry.

Using a soft rag, apply a layer of polish to the front of the panel and let it dry to a haze.

14



Turn the panel over and repeat the procedure. Let the polish dry thoroughly.

With a clean, dry cloth, buff the panel to achieve a nice shine on both sides and on the zinc framing.

15



Add the facial details.

16



Using a fine-tipped artist brush, paint the manatee's eye and detail lines or wrinkles of the face onto the glass using black hobby enamel. (If you chose to fire frit onto the body, this step could be done at that time using fusible glass paints.)

I personalized the panel I built for Peggy using the name she had bestowed upon *her* manatee, Sweet Girl. You can choose to personalize your panel. Or perhaps plan a trip to one of the many Southern places where manatees gather, gliding along in the warm water that they desire. If you catch a glimpse of these gentle creatures swimming gracefully, you may discover your very own "lady of the sea" and enjoy the amazing magnificence of these robust mermaids.

GPO

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With a main focus in drawing and painting, Leslie Gibbs enjoys transforming her more traditional artwork into glass. Charmed by both wildlife and the creatures of the sea, she often depicts the real along with the fanciful denizens of these worlds in her design and pattern books.

Leslie is a longtime Florida resident. She currently lives and works in a small beach town in Northern Florida, having forsaken the Badlands of South Florida for a more peaceful lifestyle featuring more wildlife and less concrete. A relentless jokester, Leslie tackles life's common absurdities with a wicked sense of humor and a relaxed attitude. More of Leslie's work can be seen by visiting www.LeslieGibbsStudio.com.



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Double-Wheel Kaleidoscope

Design, Fabrication, and Text by Nancy Wright-Clapson



Kaleidoscopes are great fun to explore and create. I'd like to show you how to create your own 8" long, double-wheeled scope using a three-mirror system. You can cut your own surface mirror or use the pre-cut strips provided in the Clarity Kaleidoscope Kit. If you wish to cut your own glass for these projects, a strip cutter is a handy tool to use to ensure that each piece is uniform in size.

Clarity's Mini-Scope Wheel Kit comes with 3 strips of surface mirror and felt pads. There is also a brass axle kit, which includes a threaded rod, a removable brass ball, 2 short eyelets, and 4 long eyelets. The parts to assemble your own axle kit can also be obtained from your local hardware store. To make your own axle kit, you will need a 2"-long 8/32"-size screw with the screw head cut off, a tapered 8/32" brass ball, a corresponding nut, and eyelets from a craft shop.

I generally like to purchase the axle parts separately, since it allows me to adjust the length of the threaded rod to accommodate either single or double wheels. For this particular demonstration, however, I used the purchased axle kit from Clarity. We will be using the same glass measurements that were provided in the Clarity kit.

Glass

- 3 Strips of Surface Mirror, 13/16" x 7-3/4"
- 3 Strips of Opaque Glass, 1-1/8" x 8"
- 1/16"-Thick Window Glass or Lens for Eyepiece
- Scrap Glass for Wheels

Tools and Materials

- Printer Paper
- Fine-Tipped Marking Pen
- X-Acto® Knife
- Small Tweezers
- Steel Square
- Fid
- Scissors
- 7/32" and 1/4" Copper Foil
- Flux
- Cotton Swabs
- Transparent Tape
- Pliers
- Lead Free Solder
- Clarity Brass Axle Kit
- Dawn Dish Soap or Flux Remover
- White Scrubby
- Paper Towels
- Glass Wax

Optional Materials

- Strip Cutter
- Adhesive Foam Sheet
- Clarity Mini-Scope Kit
- 4" Piece of Copper Sheet Foil
- 3/16" Copper Foil
- 1/4"- to 2"-Long Screw
- Corresponding Brass Ball and Nut

Assembling the Outer Glass Sleeve

1

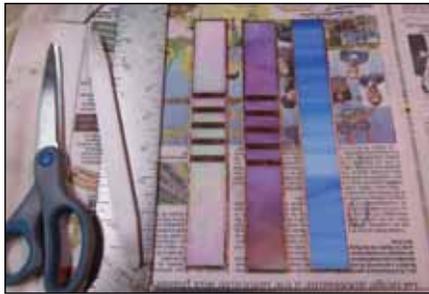
Cut three 1-1/8" x 8" strips from your desired colors of opaque stained glass for the outer sleeve.



Make sure that all three pieces are exactly the same size. Add a 3-1/2" strip of 1/4" copper foil along the upper left and upper right side of 2 of the outer sleeve sections. This is the area where the brass axle from Clarity's kit will be soldered. If you are using a headless threaded screw, you can omit adding those foil extensions.

2

Add 7/32" foil around the outer edges of the 3 opaque glass pieces.



A 3/16"-wide copper foil overlay may be added for decoration before tacking the 2 sections together.

3

Assemble the two top sections of the outer sleeve, making sure that all of the edges are lined up evenly.



Angle the 2 long sections of the opaque glass so that the top inside edges are touching and there is a 1-1/8" space at the bottom between the side pieces to allow for adding the bottom sleeve strip. Use the steel carpenter's square as a guide and make sure that the ends of the sleeve are lined up evenly. Tack-solder the top seam.

4

Install the bottom piece.



To solder the bottom piece into place, stand the first 2 tacked pieces on-end and tack-solder the third side to form an equilateral triangle, or line up the third side against the metal square as a guide and tack-solder the third side into place. The end profile should look like the photo with the inside edges touching.

5

Tin the exposed edges of the foil along the ends and lengths of the outer sleeve with solder.



Fill in the side seams with a nice, rounded bead of solder. Add pearl-shaped drops of solder for decorations, if desired. Wash the outer sleeve at this stage to remove the flux, taking care to not pull up the tinned foil at each end. Dry the inside of the sleeve well with a rolled up piece of paper towel.

6



Attach two eyelets for the kaleidoscope legs.



Select 2 of the longer eyelets for the scope's legs from Clarity's axle kit and tin them with solder. Using a pair of pliers to hold the eyelets in place, tack-solder one on either side of the scope. Have the eyelets flush with the end of the scope. Check to make sure that both eyelets are sitting in the same position and at the same angle before soldering into place.

7

Make 1 or 2 wheels, either by using the patterns supplied with the kit or designing your own.



The finished wheel for this size scope is 2-1/4" in diameter. Try using different textures of transparent clear and colored glasses when making a wheel to create interesting contrasts. Two wheels offer more overlapping image combinations.

Use the shorter eyelets for the centers of the wheels and lightly tack them into place. Having a cotton swab inserted into the holes will help to line up the wheels and prevent any accidental solder from getting inside the eyelet opening.



8

Assemble the kaleidoscope wheels.

Thread the ball onto the end of the threaded axle, slip on one of the longer eyelets, then slip the prepared wheel over the longer eyelet. Check to make sure that the wheel is sitting level. Once level, slip the remaining longer eyelet onto the axle and add the second wheel.

Make sure that both wheels are level and evenly spaced. Adjust the smaller eyelets by re-tacking if necessary. Cover the eyelet opening with a cotton swab and tack the longer eyelet to the center of the wheel.

Before removing the wheels, place a mark at the end of the axle rod with a black marker where the long eyelet ends on the axle, allowing about a 1/16" space to ensure that there will be enough room for the wheels to spin freely when assembled. If the wheels are a bit loose, you can add a small washer between the wheels to take up the slack.

9

Attach the axle to the inside of the outer sleeve of the kaleidoscope in the corner opposite from the eyelet legs.



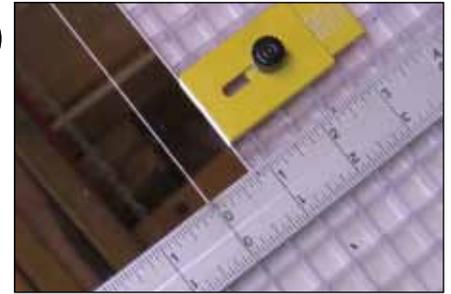
Remove the wheels and place the axle against the foil extensions inside the upper section of the kaleidoscope sleeve. Line up the black mark on the axle so that the mark is just outside the edge of the sleeve, then tack-solder the axle in place. Slip the wheels back onto the axle, screw on the ball cap, and test to make sure that the wheels are able to turn easily. Adjust as necessary.

Note: If you use a headless screw rather than the rod supplied in the kit, tack-solder the washer in place to the upper outside of the sleeve. Screw in the rod to the desired length. Do not solder the headless screw to the inside of the sleeve, or you won't be able to adjust the length of the rod.

Preparing the Three-Mirror System

10

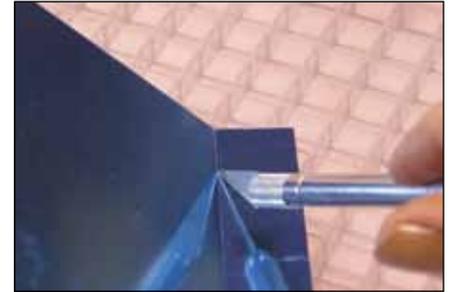
Score the glass side of the surface mirror.



If you wish to cut your own mirrors, set the yellow glass stops of your strip cutter to 13/16" wide and 7-3/4" long. Have the glass side facing up. The mirrors from Clarity's kit are already precut to those measurements.

11

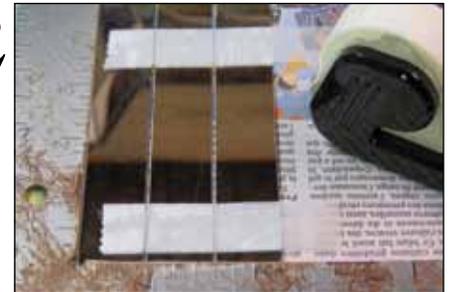
Once you have scored the glass side of the surface mirror, turn it over so that the blue plastic film is facing up.



Use an X-Acto knife to slice through the plastic. Repeat the process for the remaining 2 mirror strips.

12

Use a metal carpenter's square as a jig to line up the length and ends of the sleeve and mirror edges.

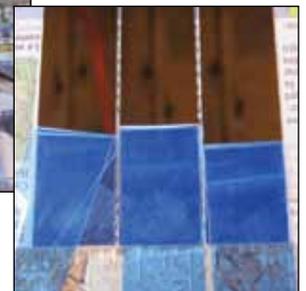


After the 3 mirror strips are cut and separated, lay them against the square, glass side facing up. Leave a 3/16" space between the long side of the mirrors to equal the thickness of the mirrors and fasten them together with three 3-1/2" pieces of transparent tape, letting 1/2" of the tape extend past the last mirror as shown in the photo.



13

Steady the mirror strips against the metal square and remove the blue plastic film.



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Turn the 3 attached mirrors over and place them against the short and long sides of the metal square to prevent them from moving around. Begin to remove the blue plastic film by peeling off one corner of the plastic film with the tip of an X-Acto knife and use a pair of tweezers to gently pull the blue protective plastic strip down part way. Continue to do the same thing for the 2 remaining mirrors until the film is completely peeled off. Great care is needed to ensure that no marks or fingerprints are made on the aluminized surface side of the mirrors.

14

Form the pyramid-shaped mirror assembly.



Carefully pick up the peeled surface mirror assembly off the table and overlap the first mirror so that the long edge sits on the edge of the second mirror. Do the same overlap for the second and third mirrors so that you create a triangular pinwheel pattern.

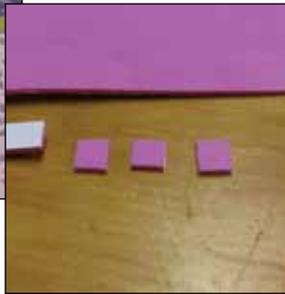
Secure the untaped side with the extended tape ends. No space should be seen along the long lengths of the mirrors once they are fully assembled. When the mirror system is inserted later into the outer sleeve, the mirrors should touch the eyepiece at the viewing end and be recessed in about 1/8" at the other end.

Completing the Assembly



15

Add 3 felt pads, one for each mirror strip, for the eyepiece viewing end only.

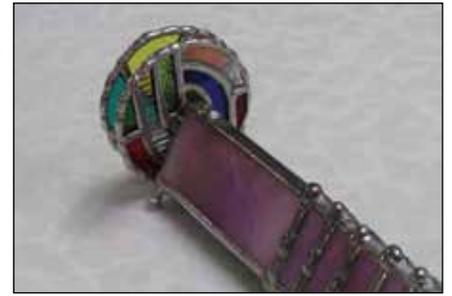


For the wheel end, there will most likely not be enough room to add a third pad at the bottom of the mirror system due to the amount of room that the axle takes up inside the sleeve, making a total of 5 cushion pads to be used for this particular kaleidoscope. If you opt to create your own size scope, either make the 3 outer strips a bit wider or have the surface mirror strips a bit narrower to allow for the amount of room that the brass axle takes up inside the sleeve.

The Clarity kit includes felt pads for this purpose. If you're not using the kit, you can buy sheets of adhesive-backed foam from a hobby/craft store and cut it to the appropriate sizes to suit the style of scope you are building.

16

Slip the assembled mirrors into the outer sleeve to check the fit.



If necessary, you can add 2 more small pads on the 2 upper mirrors only. There will most likely not be enough room to add a pad at the bottom of the mirror system due to the amount of room that the axle takes up inside the sleeve.

17

Cut out the glass for the eyepiece from 1/16" window glass.



Use the outer edge of the sleeve as the pattern minus 1/16" on all three sides to create an equilateral triangle that is approximately 1-1/16" on each side. A lens from a pair of reading glasses can also be used. Mark a small x to indicate the bottom of the eyepiece.



18

Foil the eyepiece.



Cut a piece of sheet copper foil 3/16" larger than the glass, wrap the ends of the foil sheet under the eyepiece, and burnish the foil well with a fid on both sides. Cut away enough of the foil from the top of the glass to create a viewing space while still hiding the mirror edges. If you don't have any copper sheet foil, you can use 1/4"-wide regular copper foil instead. The border of foil showing here is about 1/4" around the eyepiece opening.

19

Attach the eyepiece to the outer sleeve.



Use a lightly dampened flux brush to tack-solder, then fully solder the eyepiece in place, making sure that the small *x* (indicating the bottom of the eyepiece) is facing down toward the bottom of the scope. A damp flux brush versus a wet brush will ensure that no moisture gets into the kaleidoscope. Notice that the mirror edges cannot be seen while viewing through the end of the scope.

Once you have made a few kaleidoscopes, it may inspire you to come up with your own styles and sizes. The basic rule is to make sure that the assembled mirrors are able to comfortably slip inside the outer glass sleeve. Also, don't forget to always pad the space between the mirror and sleeve with adhesive-backed pads. What a great way to let your creativity shine.

GPO

20

Add decorative soldering to the eyepiece, if desired.



Nancy Wright-Clapson of Classy Glass Studios has always admired the way colored and textured glass reacts with light and has been working full time with her creations since 2004. Her studio is located in Douglastown, Quebec, Canada, where she does commissioned work and repairs as well as offering classes.



Nancy's studio also has a retail shop where sheet glass and supplies are available for her clients and students to purchase. She enjoys creating lamp shades, custom panel work, and various styles of kaleidoscopes and other 3-D objects, which she exhibits in various art galleries along the Gaspé coast.

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Owl in the Moonlight

Design, Fabrication, and Text by David Kennedy

“A wise old owl sat on an oak.
The more he saw the less he spoke.
The less he spoke the more he heard.
Why aren't we like that wise old bird?”
—Unknown

It's hard to walk into any store that carries items for decorating the home and not see an owl printed on something. The owl motif can be found on mugs, blankets, greeting cards, and many other everyday items. Even Etsy, the online shop for handmade goods, says that the owl motif is one of its most searched animal designs.

The owl has taken on the symbolic meaning of wisdom, intuition, and to some, wealth. For all of these reasons, it is a favorite among glass artists. Learning how to highlight the bird's showy feathers and dramatic stare will help you create a realistic version of this revered bird.



Photography by Sharon Kennedy

Wissmach Glass Co.

WO-704 Mystic Medium Green/Brown/White Opal Wispy
for Lower Background, 1 Sq. Ft.

220 Dark Blue Seville for Skyline Water, 1/2 Sq. Ft.

BLACK Dense Black for Branches, 1/2 Sq. Ft.

Spectrum Glass Company

136W Dark Blue Waterglass® for Sky, 2-1/2 Sq. Ft.

Kokomo Opalescent Glass

K47 Amber/Purple/White for Owl Body, 3-1/2 Sq. Ft.

Youghioghney Opalescent Glass Co.

1000 SP Ice White Stipple for Moon, 1/2 Sq. Ft.

Bullseye Glass Co.

3203-0021 Woodland Brown/Ivory/Black/Color Mix for Tree Stump, 1 Sq. Ft.

Uroboros Glass Studio

65-17 Light Brown/Dark Brown Streaky

for Tree Stump Top, Beak, and Talon Nails, Scrap

65-19 Light Brown/Dark Brown/Sky Blue for Talons, Scrap

Additional Glass

Dark Glass for Small Stump Accents, Scrap

Tools and Materials

7/32" Black-Backed Copper Foil 50/50 Solder

60/40 Solder 1/2" U-Channel Zinc Came

Tinned Copper Wire 1/4" Grinding Bit

Band Saw Water-Soluble Flux

Black Patina Fine Permanent Marker

Burnishing Tool 0000 Steel Wool

Hanging Hooks (optional)



1

Make two copies of the pattern, using one copy to make a template for assembling the panel.



Make sure that the pattern for cutting fits the template as well. The finished size for the project is 18" x 24".



2

Cut the branches from the Wissmach Dense Black, using the band saw to shape the edges, and lay them on the template.



They should resemble the silhouette of a tree.



3

Cut a piece of the Spectrum Dark Blue Waterglass, mark where the branches will go, and cut out the upper sky background pieces.



Make sure that the pattern of the Waterglass is all horizontal.

4

Add the moon and the lower portion of the sky background.



Use the Youghiogheny 1000 SP Ice White for the moon. Now cut the lower sky pieces from the Waterglass, again making sure the pattern is horizontal.

5

Identify the light, medium dark, and dark sections of the Kokomo K47 sheet.



Holding the sheet up to the light helps with the process.

6

Cut and place the pieces for the owl's head.



Use the lightest part of the sheet to cut pattern pieces numbered 1, 8, 9, 15 and 16 for the outer perimeter of the owl's head. Pieces numbered 2, 3, and 10 in the center of the owl's face are slightly darker, and pieces numbered 6 and 7 on the sides of the eyes are the darkest. Change the direction of the grain for maximum effect.

7

Cut and place the glass pieces for the eyes and surrounding feathers.



Pattern pieces 4, 5, 13, and 14 around the eyes can now be added. The eyes themselves are cut from the Wissmach Dense Black. It's worth taking you time at this stage to make sure that everything is cut accurately.

8

Cut the remaining feathers for the body from the Kokomo K47.



Keep the darker parts of the glass pieces toward the top of the feathers.

9

Add the glass pieces for the water, tree stump, and beak.



Use Wissmach 220 Dark Blue Seville for the skyline pieces and Bullseye Soft Ripple 3203-0021 for the bottom of the tree stump. Cut the beak from the Uroboros 65-17 scrap glass.

10

Use a band-saw to cut the top piece of the tree stump from the Uroboros 65-17 granite backed glass.



Add the thin, dark accents to the tree stump using some dark scrap glass.

11

Use the WO-704 Wissmach Brown and Green to cut the pieces for the lower background area.



12

Cut the talons from the Uroboros 65-19 and the talon nails from the 65-17.



13

Apply foil to each of the glass pieces and burnish the foil onto the glass.



Since some of the glass is translucent, I used a blacked-backed foil. A putty knife was used for burnishing the foil.

14

Reassemble the foiled pieces inside the assembly frame.



With all of the pieces foiled and reassembled, the panel is now ready for a first soldering.

15

Apply flux to all of the seams and solder them flat using 50/50 solder.



Next remove a side slip and a bottom slip from the template. The panel can now be removed so the same process can be repeated on the reverse side. Framing can now commence.

16

Prepare the U-channel zinc for the frame.



Cut four lengths of the U-channel zinc came, making sure they are at least 2" longer than the sides of the panel. These need to be cleaned thoroughly with 0000 steel wool. This is important, not only for soldering purposes but also for the application of the patina.

17

Assemble the zinc U-channel frame.



Cut a miter on one end of all four pieces of the zinc came. Fit two pieces into the remaining corner of the template. Slide another piece of zinc up the side and make a mark as shown. This will give you an accurate cut line for the other ends.

18

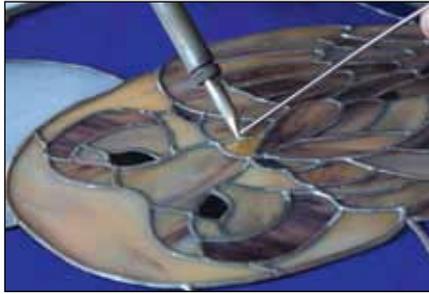
Once all of the miters are cut, flux and solder the joints.



Hooks for hanging can be added at this point if desired.

19

Reapply flux to all of the seams and bead-solder the panel with 60/40 solder on both sides.



20

Give the panel a final cleaning before applying black patina to the solder lines and frame.



Clean the panel again with the 0000 steel wool to remove any flux residue, then apply black patina with a small paint brush to all of the seams and zinc framing. The panel is now ready to be displayed in a window of your choice.

GPO

David Kennedy began his stained glass journey in 1984. After mastering the basics, he moved on to art glass, which has now become his passion. The artist doesn't use plating or painting techniques, preferring instead to take his inspiration from the glass itself.



David is now in the process of publishing his original designs on etsy.com with the help of his wife Sharon. They live on the Hook Peninsula, located in a rural historic southeastern section of Ireland, where he produces panels and designs in his own unique style.

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Lynx

Design by Jean Beaulieu, Text by Darlene Welch



The characteristic brilliant eyes and black-tipped ears of the medium-size wild cat known as the lynx are captured perfectly in this 24" x 24" design by Canadian glass artist Jean Beaulieu. Using two shades of Wissmach's Wisspy gray glass creates a feeling of depth in the panel and helps to depict the silky strands of fur in the ears and around the eyes of the lynx. If you prefer, you can use glass paint instead of cutting glass for the smaller details around the eyes, nose, and mouth.

This design is from Beaulieu's book, *Wildlife*, a collection of twelve patterns that feature animals in the wild. Included are patterns for eagles and owls plus a raccoon, fox, moose, wolf, bear, squirrel, falcon, and puma. The designs can be created as panels or used as free-form projects. Visit jeanbeaulieu.com to view more of Beaulieu's work.

GPO

Wissmach Glass Company

557-L Medium Gray/Light Opal for Medium Facial Details, 2 Sq. Ft.
613-D Williamsburg Blue/Opal/Crystal for Darkest Facial Details, 1 Sq. Ft.
WO-325 Light Amber/Opal/Crystal
for Ears, Eyes, and Beard for Lightest Facial Details, 2 Sq. Ft.
BLACK Dense Black for Facial and Ear Details, Scrap
WO-051 Opal/Crystal for Eyes, Scrap
146-L Yellow Green/Opal/Crystal for Eyes, Scrap
78-L Medium Amber/Green/Opal/Crystal for Background, 4 Sq. Ft.
245-L Medium Amber/Tree Green Streaky/Opal/Crystal for Border, 3. Sq. Ft.

Tools and Materials

7/32" Copper Foil Flux Solder
Black Patina 1/2" Zinc U-Channel
Black, Gray, or White Glass Paints (optional)

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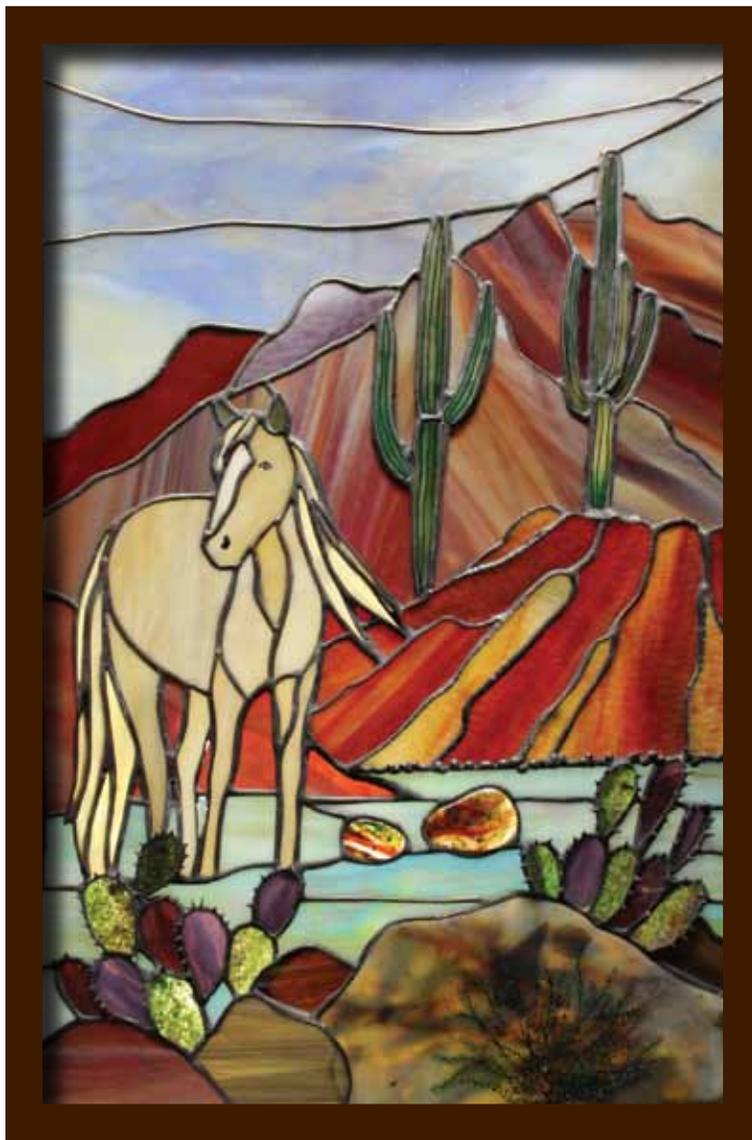
Wild Horse Panel with Fused Elements

Design and Fabrication by Alysa Phiel, Text and Photography by Jane McClarren

Sighting wild horses in the American Southwest is not an unusual thing, but it's an incredible treat to the viewer. The unbridled nature of this graceful creature is a favorite subject of photographers and sightseers, and is a natural-born icon of the West. A lone mustang comes alive in this 14" x 22" panel using colorful textures and frit to add a three-dimensional effect. You will learn a method similar to plating called "offset alignment," a way to add more dimension and texture to a landscape such as this. You will use this technique to create your own unique pieces of glass art in your kiln.

Fusing the frits and powder to the clear glass will give you a piece that we refer to as a collage sheet. You can use the collage for the multicolored ground cover and saguaro cactus pads. This panel was created in the same way that many glass artists do by using some favorite glass sheets that have been stored in our Arizona glass studio waiting to breathe life into just the right project. We have added to the artistic uniqueness by creating our own glass nuggets, painting natural details, and adding decorative soldering.

As you create this panel, always remember that it is *essential* to use a respirator mask whenever you work with frits and powdered glass. When working with powdered frit, you also want to be in a well-ventilated area and out of direct drafts to keep the powder from blowing.



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Sheet Glass

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2672 Sunflower

2262 Lemongrass

755 Fern Green

128 Aventurine Green

CN-15-96 Purple Confetti

Kokomo Opalescent Glass

263 Amber/Blue/Purple/Opal for Sky, 10" x 18"

Additional Glass

On-Hand Scrap Glass from Various Manufacturers

Brown/Gray Opaque Scrap for Rocks and Back Mountains, 20 Sq. In.

Purple Opaque Scrap for Prickly Pear Pads, 12 Sq. In.

Wispy Blue Opaque for River, 6" x 18"

Textured and Smooth Brown/Red Opaque for Foothills, 6" x 12"

Cream/Tan Opaque for Horse Head Blaze, 6" x 10"

Brown/Gray/Tan Opaque Blend for Mountain, 10" x 12"

Fine and Medium 96 COE Frits

Opal, Transparent, and Textures in Greens and Purples

Powder

Green

Glassline Glass Paints

Dark Green

Light Green

Kelly Green

Black

White

Paint Liner Tips

Tools and Materials

Mosaic Nippers

Basic Glass Cutting Tools

Respirator Mask

Pump-Style Hair Spray

Small and Large Flat Bottomed Sifters

Black and White Vitreal or Enamel Paint

Protective Eyewear Sharpie Marker

Thin and Medium Paintbrushes

Ceiling Tile/Soft Board for Stained Glass

Aluminum Pushpins Rheostat 7/32" Copper Foil

60/40 Solder Soldering Iron Flux Brush Liquid Flux

Papyros® Kiln Shelf Paper or Prepared Kiln Shelf

Patina Glass Polish Clean Rags

Preparing the Glass Accent Pieces

1

Apply the powdered glass and frits onto the clear glass to create your desired pattern.



Lay the clear glass on your work surface. Hold a small flat-bottomed sifter over the clear glass and pour the green powdered glass into the sifter. Move the sifter back and forth to cover the glass with a thin layer of powder. Pour any extra powder back into the jar.

Using the large sifter, sprinkle the green fine frit in a different direction over sections of the panel. Repeat with additional colors of green fine frit. Using the large sifter, sprinkle the medium purple frit over the desired areas of the panel.

Continue to add fine and medium frit in greens and purples to create a pattern you like. Seafoam transparent frit adds some subtle blue tones. Add opals as a top layer for some highlights and perspective.

Sprinkle some Purple Confetti in areas for added detail. This will give you a "collage sheet" of glass that will be used to create some of the prickly pear pads. When you are happy with the design, spray with pump hair spray to hold the pieces in place and move it to the kiln.

2

Place nipped pieces of scrap glass onto the surface of one of the pieces of the Rootbeer/Cream glass for the ground.



Lay one piece of Rootbeer/Cream on the work surface. Using mosaic nippers, cut small pieces in various sizes and shapes of the scrap browns, greens, and purples on top of the Rootbeer glass. These scraps are going to add details and create a dense look to the ground. Spread scraps over the glass in a single layer, rearranging pieces if necessary. Cover with the second piece of Rootbeer/Cream glass. Carefully move it to the kiln as well.



3



Create the river rocks.

We made the river rocks with scraps from an old screen melt. If you have scraps or broken pieces from something previously fused, you can use them to create large glass globs by re-fusing the glass to round the edges. If necessary, nip sections of the scrap glass with mosaic nippers or break it into pieces with a hammer. Move them to kiln.

Fire all of the pieces using the following full fuse program schedule with a maximum temperature of 1450°F, adjusting as needed for your own particular kiln.

Full Fuse Schedule

Segment 1: Ramp 100°F/hr to 300°F and hold 15 min.

Segment 2: Ramp 150°F/hr to 1050°F and hold 10 min.

Segment 3: Ramp 250°F/hr to 1450°F and hold 1 min.

Segment 4: Ramp 9999 (AFAP*) to 950°F and hold 90 min.

Segment 5: Ramp 100°F/hr to 800°F and hold 10 min.

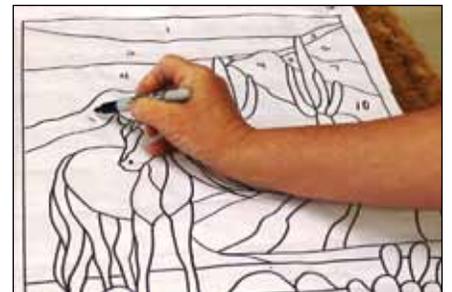
Segment 6: Ramp 300°F/hr to 100°F and no hold.

*as fast as possible

Assembling the Panel

4

Prepare the pattern.



Using a Sharpie marker, number each piece on the pattern. Make a copy of the stained glass pattern and cut out the pattern pieces. Pin the original pattern to the soft board. Determine the placement of the pattern pieces on the glass you have selected to capture the best sections of design or texture.

Use a Sharpie marker to trace the pattern pieces onto the glass. Using a glass cutter and running pliers, cut out the pattern pieces. Write the pattern piece number on each piece and place it on the board.

Move the pattern piece for the ground around on the fused Rootbeer/Cream panel to determine the section that you like the most. Trace the pattern and cut as above.

5

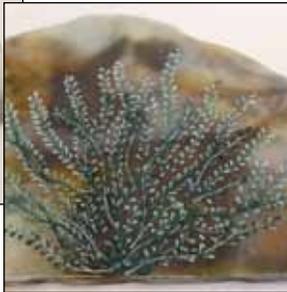


Paint on the creosote bush.

Using Dark Green Glassline Paint and the liner tip, draw curvy lines for the creosote bush on the piece of ground you just cut from the Rootbeer/Cream glass. Using Kelly Green, draw additional lines for the bush. The lines can cross each other.



6



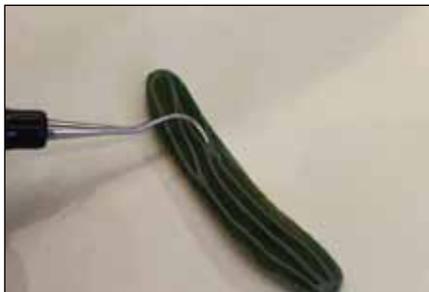
Add the creosote bush leaves.

Begin to add leaves in different colors of Glassline Glass Paint by placing a small drop of paint from the liner tip near the stem, then dragging and dropping with the tip toward the stem. Using the same tip between colors is fine, since that will create a blend. Add a few leaves using Light Green paint.

Once the paint has dried, use your fingers to sprinkle tiny amounts of Fine Opal frit along the stems. We used Sunflower, Lemongrass, Fern Green, and Aventurine Green. Use a clean paintbrush to move the frit into place. Spray with hairspray to hold the frit in place and move the piece of glass to the kiln.

7

Using Dark Green paint and the liner tip, draw the ribs on the pieces of the saguaros.

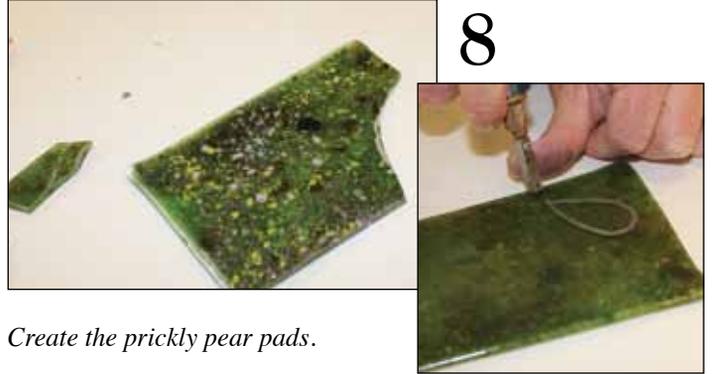


Each line should connect at the top and bottom of the saguaro pieces. Once the paint has dried, you can use a dental tool or toothpick to scrape off areas where the paint lines may be too thick. Move the pieces to the kiln. Fire them using the following suggested dimensional fuse schedule, with a maximum temperature of 1420°F. Adjust the schedule as needed to fit your own kiln.

Dimensional Fuse Schedule

- Segment 1: Ramp 100°F/hr to 300°F and hold 15 min.
 - Segment 2: Ramp 150°F/hr to 1050°F and hold 10 min.
 - Segment 3: Ramp 250°F/hr to 1420°F and hold 1 min.
 - Segment 4: Ramp 9999 (AFAP*) to 950°F and hold 90 min.
 - Segment 5: Ramp 100°F/hr to 800°F and hold 10 min.
 - Segment 6: Ramp 300°F/hr to 100°F and no hold.
- *as fast as possible

8



Create the prickly pear pads.

Choose sections of the collage sheet that you like for some of your prickly pear pads. Trace the pattern pieces with a Sharpie marker and cut as above. We made some of the pads from green and purple glass as well as from the collage sheet.

9



Position the glass pieces according to the pattern, then foil the edges.

Continue to cut the stained glass pieces until you have all of the pieces cut and arranged to your liking. Begin to apply copper foil to each of the glass pieces and place them back onto pattern.

10

Offset the alignment of some of the pieces of the prickly pear, mountain, horse, and saguaros to create the illusion of dimension.



This technique can be accomplished by setting the glass pieces at a slight angle, but still touching the surrounding pieces on the other sides. Arrange the pieces to determine which ones you might want to place for a dimensional effect.

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Plug in your soldering iron and rheostat. Pour a small amount of flux in the bottle cap or other small cap. Using the flux brush, apply small amounts of flux along the copper foil between the pieces and tack-solder them to hold them in place. For the pieces you want to be dimensional, hold them at the desired angle and tack-solder each one in place.

11

After you have tacked all of the pieces in place, solder the entire project.



Apply flux to the edges of the pieces of glass and solder all of the copper foil edges. After the front side is soldered, remove any remaining pushpins and carefully turn the panel over, apply flux to the back side, and solder. Once the solder has cooled, turn the piece back over to the front. After all of the soldering is cleaned up, you can go back and use some decorative soldering techniques to add more details.

To soften the edges of the river, we added some soldered beading. To create these shapes, apply flux to the area you want to cover. Holding the soldering iron right above the solder line, gather a large drop of solder on the iron. Move the drop with the soldering iron to the existing solder line and allow the drop to transfer. If the drop isn't round enough, add more flux and touch the drop with the soldering iron to re-melt, and it will shape into a drop.

12

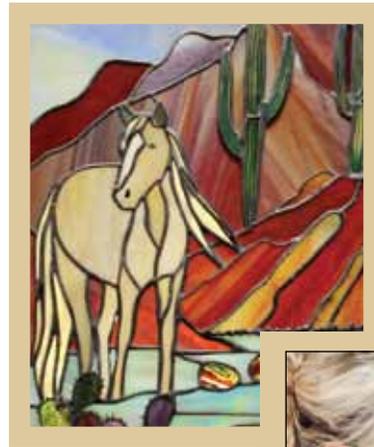
Add spikes to the prickly pear cactus.



Place solder between an existing solder line and the soldering iron so that the solder attaches itself, then slowly drag the solder away to create a spike. You may have to lower the temperature on your soldering iron to get the spikes to stick out straight versus drooping.

To finish the panel, brush patina onto the soldered areas, then wipe it off with a rag. Apply glass polish to the glass and buff with a clean rag. Using the thin brush and black paint, add the outline and pupil of the horse's eye, then paint the nostril. Clean and dry the brush. After the black paint has dried, add white to the eye and a spot of white on the nostril. If desired, you can solder hooks and chain to the top of the panel for hanging or display it on an easel.

GPO



Alysa Phiel is a third-generation glass artist and has over twenty years of experience creating in glass,

teaching classes, and creating custom work for private collections. In 2009, she joined the staff of the Sonoran Glass School in Tucson, Arizona, as a teacher of fusing, mosaic, and stained glass classes.

Alysa's creativity knows no limits, ranging from intricate stained glass projects to Southwestern and ocean-themed mosaics and fused pieces. Her range of knowledge makes her a fantastic instructor for students looking to create any type of glass art in Sonoran's Warm Glass Shop.



Josh Bernbaum

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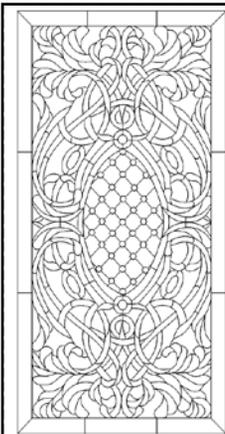


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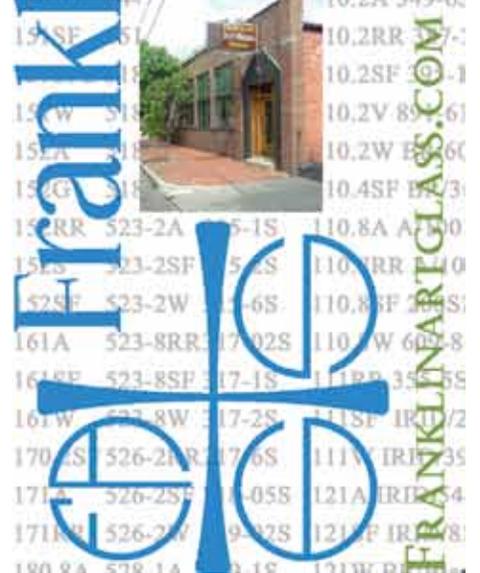
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It's Cold Out!

Mosaic Bluebird Wall Hanging

Design, Fabrication, and Text by Christine Brallier



It's that time of year again when we get out our sweaters, hats, mittens, and this little bluebird, wearing his dapper red scarf, is no exception. This detailed wildlife scene makes great use of an artist's stained glass supply, since it uses smaller amounts of glass that many will have on hand already from previous projects. The use of millefiori sprinkled throughout adds interest and detail to the whimsical design.

Armstrong Glass Company

4218S Cobalt Blue/Opal/Streaky for Bird, 1/4 Sq. Ft.

1840S Opal/Pale Blue/Wispy for Sky, 3/4 Sq. Ft.

Bullseye Glass Company

003203-0030 Woodland Brown Opal/Ivory/Black for Border and Branches, 1/2 Sq. Ft.

002037-0030 Clear/French Vanilla Opal for Bird, 1/4 Sq. Ft.

Uroboros Glass

60-618-96 Black Cherry Opal for Scarf, 1/4 Sq. Ft.

Additional Glass

1/4" Millefiori (30 Blue, 10 White, 10 Brown, 1 with Dark Center)

Beads

225 Size 6/0 Round Terra-Cotta Beads

50 Size 4 mm Light Beige Cube Beads

Tools and Materials

10" Circular Wood Base Carbon Paper

Wood Primer Medium-Size Paintbrush

Red Ballpoint Pen White Glue

Black or Red Fine-Point Sharpie® Marker

Protective Eyewear Wheeled Nippers

Glass Cutter Running Pliers Pencil

Masking Tape Brown Acrylic Paint

Varnish D-Rings Hanging Wire

8-Ounce Disposable Container

Charcoal Sanded Grout Newspaper

Sponge Disposable Gloves Dust Mask

Mixing Tool Paper Towels

Dental Pick Dry Cloth Ruler

1

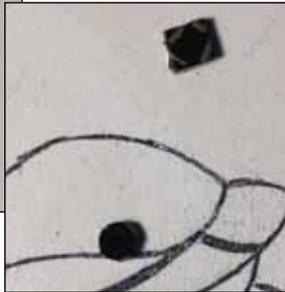
Enlarge the pattern to 10" and prepare the wooden base.



Paint a coat of primer on the wooden base to protect the wood from warping. A circular base was used here, but if you prefer, you can use a square base and eliminate the circles in the design. After it dries, use carbon paper to trace the pattern onto the base with a red ballpoint pen.



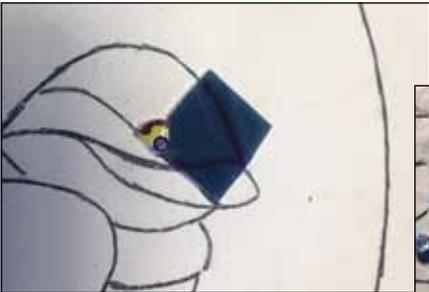
2



Cut the glass, starting with the eye to establish the bird's personality.

Pick a millefiori piece for the eye that has a dark, solid circle in the center of it. Use the wheeled nippers to trim it into a rounded triangular shape, with the center circle being used for the pupil.

As an alternative way to create the eye, you can cut a black circle out of scrap glass. Start with a square, trim off the corners, then round out the edges. Glue the eye glass in place.



3



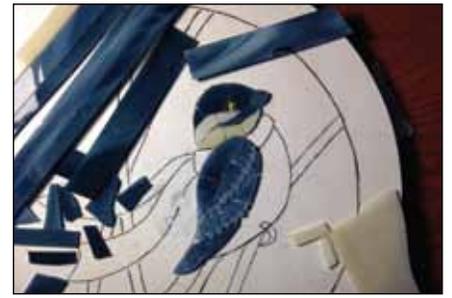
Cut the glass for the head and choose millefiori for the wings.

To help cut the pieces more precisely, put the glass where you want it to go and draw the shape that you want to cut onto the glass with the black Sharpie marker. Use a slightly lighter blue glass for the beak so it will be differentiated from the rest of the head. Cut the lighter glass pieces for the bird's cheek and eye area from the Clear/French Vanilla. Glue as you go along, leaving 1/8" of space in between the glass pieces to allow room for the grout later.

Choose millefiori for the wing in colors that harmonize with the blues of the bird. Lay them in a slightly curved line across the wing, ensuring that they are as you like before gluing them in place. You may want to cut the end pieces in half for a smoother line.

4

Fill in the rest of the wing with the blue glass.



5

Add the tail feathers, claw, and lower part of the body.

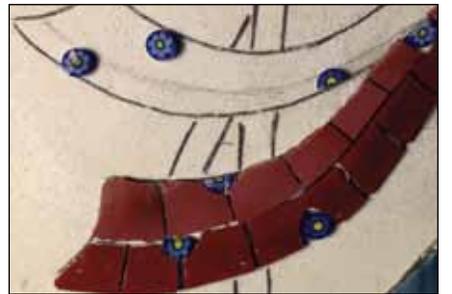


When you cut the glass for the tail feathers, use darker blues for the bottom feathers to add more depth and to distinguish them from each other. You may find it helpful to pencil in lines on the board to guide you as to how you want to cut your pieces.

Use the same blue for the claw. It will be difficult to cut just one piece since it is so curved, so use two or three smaller pieces. Finish the rest of the body with pieces of the Clear/French Vanilla glass.

6

Use different tones of the Black Cherry Opal glass on the scarf plus the blue millefiori, with some whole and some cut in half.



Feel free to decorate the scarf however you want. First lay out the millefiori as desired. Pencil in lines to help as a cutting guide, then fill in the background with the stained glass. Again, using different shades of red adds depth and interest.

7

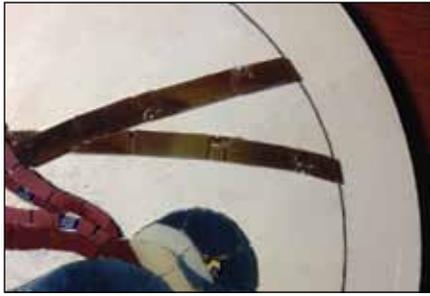
For the branches, cut the brown glass into strips.



Use the glass cutter to score the glass and the running pliers to break the glass into strips. Then use the wheeled nippers to cut the strips into rectangular shapes. Choose glass that has dark and light browns in it to add more variation and realism to the branches.

8

Add some brown millefiori cut in half to the branches if you like.



9

Cut rectangles from the Opal/Pale Blue/Wispy glass to use for creating the sky.



You will use the same technique for creating the sky as you did for building the branches. Mark the squares on the blue and white glass in preparation for cutting the rectangles of glass. Use the ruler and Sharpie marker to draw long lines going one way and lines closer together the opposite way to mark the rectangles. Score all of the lines with the glass cutter and break them apart using the running pliers.

The glass used here is very light blue with a lot of white for a wintery feel. If you would like to use a different glass, be sure to choose a sky color that is light enough for the bird to stand out. If it is too close in value to the blue of the bird, the bird may disappear. One way to ensure that this doesn't happen is to take a photo of the bird glass next to the sky glass and look at the photo in gray scale on your phone or computer. The glass for the sky should be a lot lighter than the glass for the bird.

10

Cut and lay the glass for the sky with the glass grain running in the same direction as the branches.



Add a few well-placed white millefiori snowflakes before filling in the rest of the sky with glass.

11

Cut and place the brown glass for the inside border.



Using the same brown glass as the branches, cut the glass into 1/2" strips, then into squares. Place the brown glass pieces around the mosaic to form the inside border.

12

Place a row of beads next to the outside edge of the brown glass strips.



Feel free to change up the colors or pattern if you prefer, but be sure to choose beads that are the same height or higher than the glass so they don't get buried in the grout later. Here the beads were chosen to harmonize with the existing colors of the glass. Five terracotta round beads were alternated with one light beige cube bead.

The beads were strung using needle and thread. Be sure to add some masking tape to the end so the beads don't slip off. It's easiest to work with a small string of beads at a time.

Put a line of glue adjacent to the glass. Starting with the taped end, carefully lay the string of beads down into the glue. Hold the taped end and slowly pull the string out, putting any beads that move back into place. Another option is to leave the string inside the beads.

13

Finish the outside of the border with darker rectangular pieces of the brown glass.



The width of the last row of brown stained glass will vary depending on the size of beads you used. Choosing a slightly darker brown for this row will help the mosaic be more balanced. Allow the glue on the border pieces to dry for 48 hours before grouting.

14

Cover your work surface with newspaper and prepare the grout.



Protect your work surface by covering it with newspaper. Mix the grout in a well-ventilated room or outdoors and wear a respirator mask to avoid breathing in harmful grout dust. An 8-ounce container will be large enough for the amount of grout you will need for a 10" mosaic. Scoop the grout into the container and slowly add small amounts of water. Stir thoroughly.

Continued on page 49



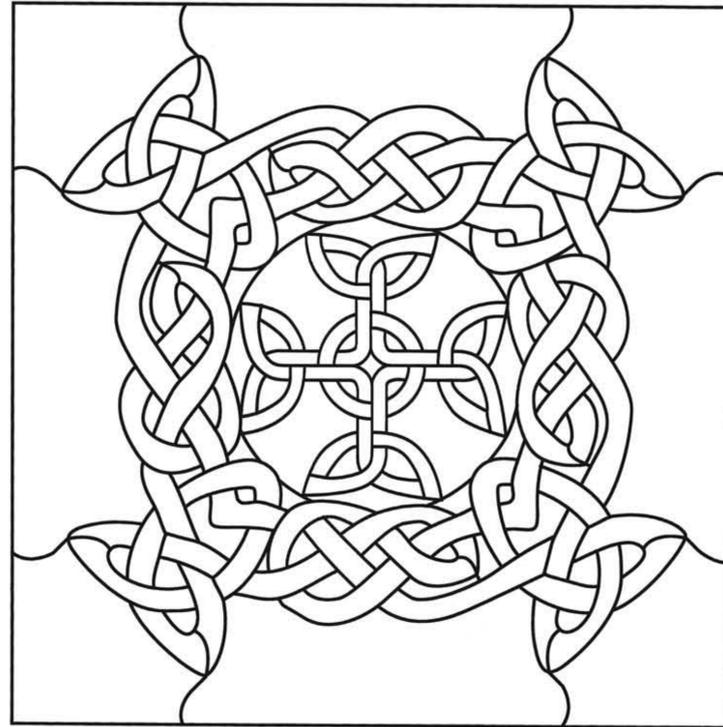
Enlarge to desired size

Polar Bear Motherhood

Design by Paned Expressions Studios

Wissmach Glass Company

01 Crystal for Bears, 1 Sq. Ft.
600-D Dense Opal/Light Grey for Bears, 1/2 Sq. Ft.
WO-051 White Wispy for Bears, 1/2 Sq. Ft.
BLACK Dense Black for Bear Paws, Nose, Mouth, and Ears, Scrap
51-DDXXM-Irid Crystal/Opal for Snow, 2 Sq. Ft.
272-L Light Opal/Light Blue/Mauve for Sky, 3 Sq. Ft.
437-D Dark Blue/Light Amber/Medium Purple/Opal/Crystal Light Opal Base for Sky, 3 Sq. Ft.
437-L Dark Blue/Light Amber/Medium Purple/Opal/Crystal Wispy Opal Base for Sky, 4 Sq. Ft.



Enlarge to desired size

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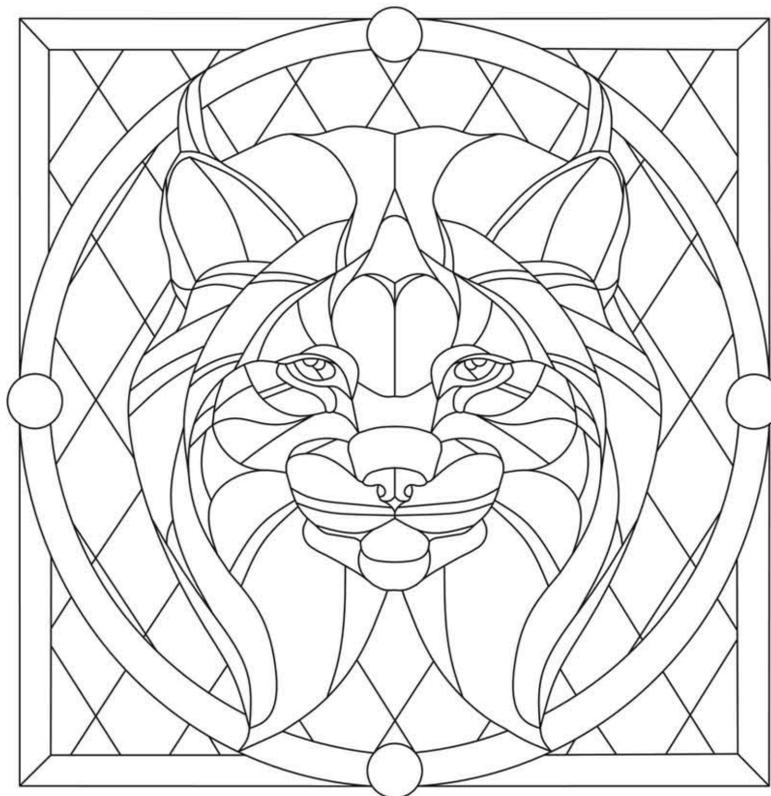
It's Cold Out! Mosaic Bluebird Wall Hanging

Design by Christine Brallier

Armstrong Glass Company
B - Cobalt Blue/Opal/Streaky for Bird, 1/4 Sq. Ft.
S - Opal/Pale Blue/Wispy for Sky, 3/4 Sq. Ft.

Bullseye Glass Company
T - Woodland Brown Opal/Ivory/Black for Border and Branches, 1/2 Sq. Ft.
C - Clear/French Vanilla Opal for Bird, 1/4 Sq. Ft.

Uroboros Glass
60-618-96 Black Cherry Opal for Scarf, 1/4 Sq. Ft.
Additional Glass
1/4" Millefiori (30 Blue, 10 White, 10 Brown, 1 with Dark Center)



Enlarge to desired size

Celtic Cross

First Rendering by Franci Claudon
Design by Jeffrey Castaline
and Hiroyuki Kobayashi

Wissmach Glass Company
8-D Gold Pink/Cobalt Blue for Inner Background, 1 Sq. Ft.
12-L Copper Red/Light Opal/Crystal for Center Cross, 1-1/2 Sq. Ft.
WO-238 Dark Purple/Dark Blue/Yellow Green/Opal/Crystal for Outer Design, 5 Sq. Ft.
94-L Medium Purple/Amber/Opal/Crystal for Outer Background, 9 Sq. Ft.

Lynx

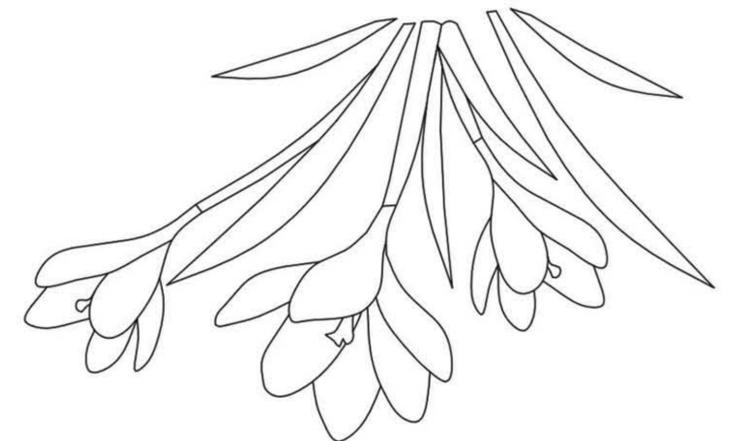
Design by Jean Beaulieu

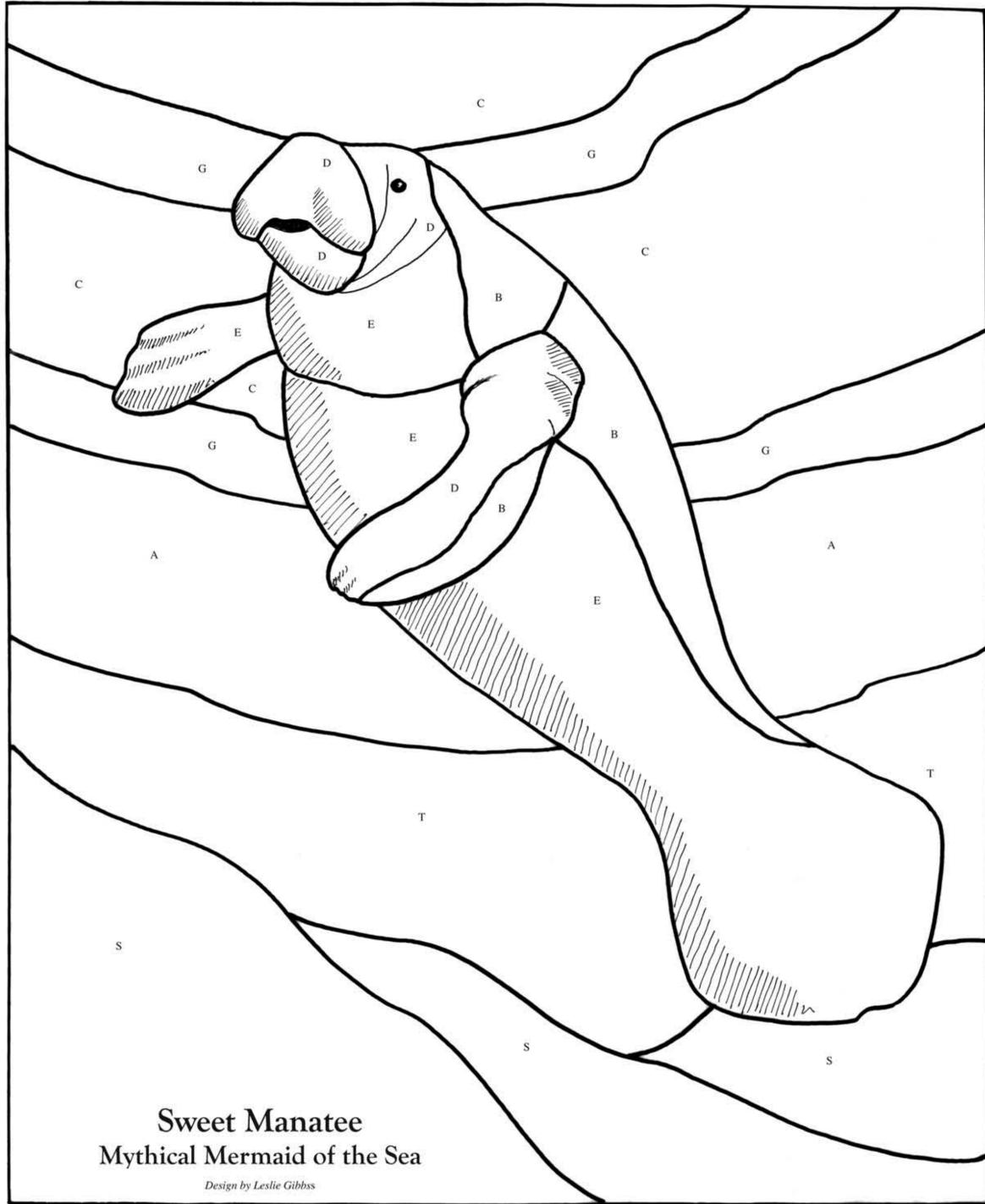
Wissmach Glass Company
557-L Medium Gray/Light Opal for Medium Facial Details, 2 Sq. Ft.
613-D Williamsburg Blue/Opal/Crystal for Darkest Facial Details, 1 Sq. Ft.
WO-325 Light Amber/Opal/Crystal for Ears, Eyes, and Beard for Lightest Facial Details, 2 Sq. Ft.
BLACK Dense Black for Facial and Ear Details, Scrap
WO-051 Opal/Crystal for Eyes, Scrap
146-L Yellow Green/Opal/Crystal for Eyes, Scrap
78-L Medium Amber/Green/Opal/Crystal for Background, 4 Sq. Ft.
245-L Medium Amber/Tree Green Streaky/Opal/Crystal for Border, 3 Sq. Ft.

Winter Crocus

Design by Lisa Vogt

Wissmach 96™
96-03 White for Background, 1-1/2 Sq. Ft.
Sheet Glass
Spectrum 132SF Light Blue for Base, 1-1/2 Sq. Ft.
Uroboros 60-4245-96 Cobalt Blue Transparent/White for Flowers, 1/4 Sq. Ft.
Uroboros 60-7555-96 Fern Green Opal/White for Leaves, 1/4 Sq. Ft.
Flt
F3-2116-96 Chocolate Opal, Medium
F3-111-96 Dark Amber Transparent, Medium
F3-200-96 White, Medium
F3-538-96 Navy Blue Transparent, Powder
F2-171-96 Light Orange Transparent, Fine
F3-01-96 Water Clear, Medium





Sweet Manatee Mythical Mermaid of the Sea

Design by Leslie Gibbs

Armstrong Glass Company

C - Clear/Aqua/Streaky/Cobblestone/Iridescent for Water at Top of Lagoon and Water Layer 3, 6" x 12"
A - Aqua Opalescent for Water Layer 5, 6" x 10"
S - Opal/Caribbean Blue/Aqua/Amber/Streaky for Sandy Bottom, 8" x 11"

Bullseye Glass Co.

Sheet Glass

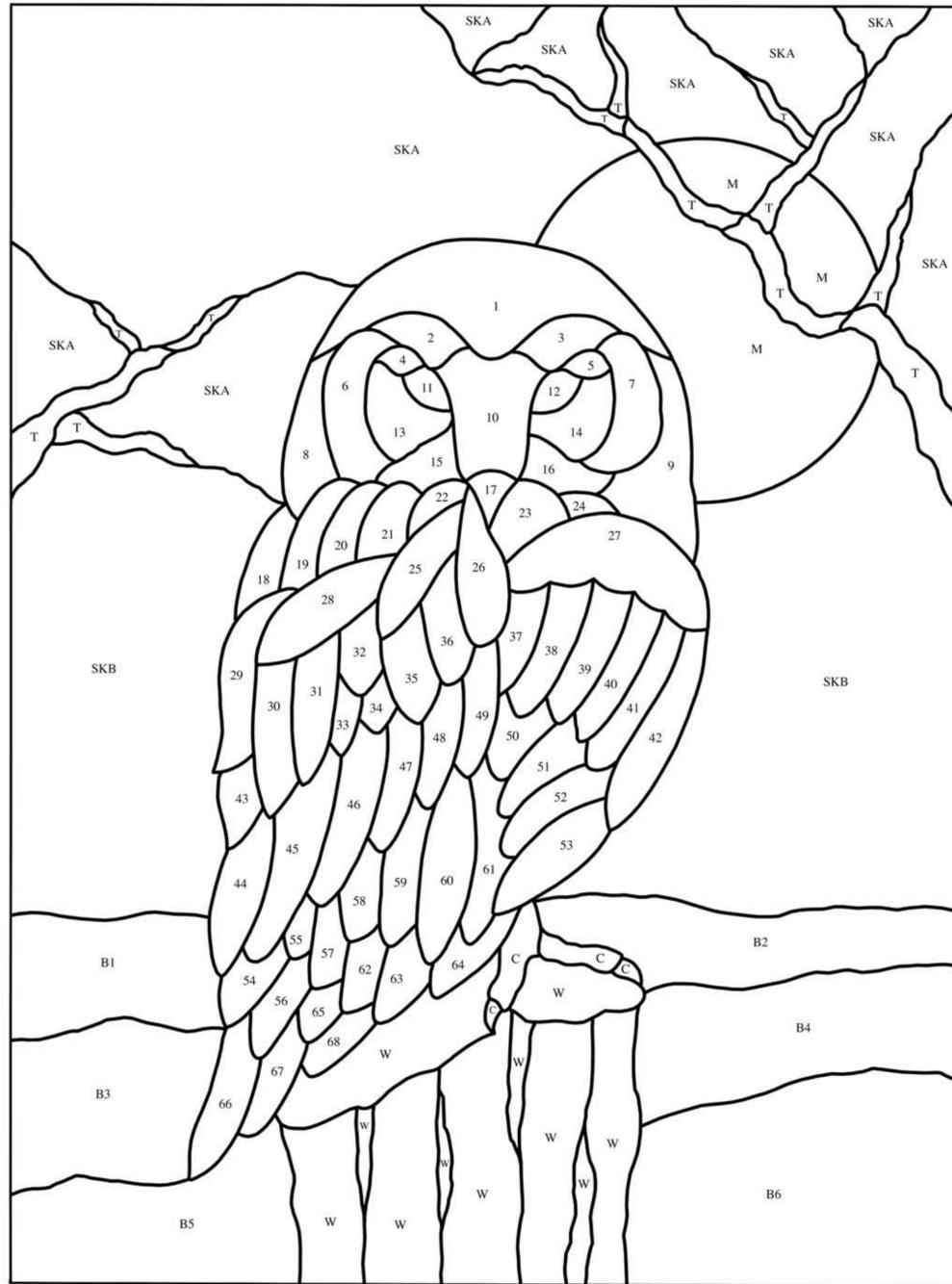
G - Emerald Green Iridescent for Water Layers 2 and 4, 6" x 10"
T - Turquoise Blue for Water Layer 6, 6" x 10"
D - Driftwood Gray for Face, Snout, and Top of Left Flipper, 4" x 6"
E - Elephant Gray for Right Flipper and Underbody, 12" x 12"

Frit (optional)

0116 Turquoise Blue, 1/4 cup
1429 Light Silver Gray, 1/4 cup
0100 Black, pinch

Spectrum Glass Co.

B - Gray/White for Left Flipper Bottom and Top of Body, 4" x 8"



Enlarge to desired size

Owl in the Moonlight

Design by David Kennedy

Wissmach Glass Co.

WO-704 Mystic Medium Green/Brown/White Opal Wissy for Lower Background, 1 Sq. Ft.
220 Dark Blue Seville for Skyline Water, 1/2 Sq. Ft.
BLACK Dense Black for Branches, 1/2 Sq. Ft.

Spectrum Glass Company

136W Dark Blue Waterglass® for Sky, 2-1/2 Sq. Ft.

Kokomo Opalescent Glass

K47 Amber/Purple/White for Owl Body, 3-1/2 Sq. Ft.

Youghiohony Opalescent Glass Co.

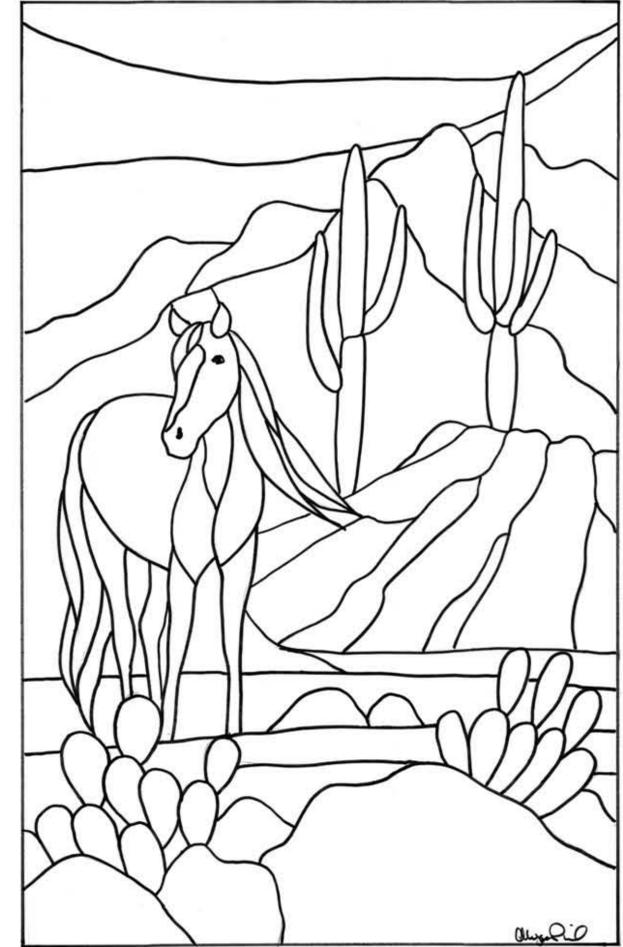
1000 SP Ice White Stipple for Moon, 1/2 Sq. Ft.

Bullseye Glass Co.

3203-0021 Woodland Brown/Ivory/Black/Color Mix for Tree Stump, 1 Sq. Ft.

Uroboros Glass Studio

65-17 Light Brown/Dark Brown Streaky for Tree Stump Top, Beak, and Talon Nails, Scrap
65-19 Light Brown/Dark Brown/Sky Blue for Talons, Scrap



Enlarge to desired size

Wild Horse Panel with Fused Elements

Design by Alysa Phiel

System 96®

Sheet Glass

100SFS Clear for Collage Sheet, 6" x 12"
60-93-96 Rootbeer/Cream for Ground, 6" x 12" (2)
Various Shades and Patterns of Opaque and Transparent Browns, Greens, and Purples, Scrap

Fine and Medium Frits

2672 Sunflower

2262 Lemongrass

755 Fern Green

128 Aventurine Green

CN-15-96 Purple Confetti

Kokomo Opalescent Glass

263 Amber/Blue/Purple/Opal for Sky, 10" x 18"

Additional Glass

On-Hand Scrap Glass from Various Manufacturers

Brown/Gray Opaque Scrap for Rocks

and Back Mountains, 20 Sq. In.

Purple Opaque Scrap for Prickly Pear Pads, 12 Sq. In.

Whisper Blue Opaque for River, 6" x 18"

Textured and Smooth Brown/Red Opaque for Foothills, 6" x 12"

Cream/Tan Opaque for Horse Head Blaze, 6" x 10"

Brown/Gray/Tan Opaque Blend for Mountain, 10" x 12"

Fine and Medium 96 COE Frits

Opal, Transparent, and Textures in Greens and Purples

Powder

Green

Glassline Glass Paints

Dark Green

Light Green

Kelly Green

Black

White

Paint Liner Tips

It's Cold Out! Mosaic Bluebird Wall Hanging

Continued from page 32

The consistency of the grout should be like mashed potatoes. If it gets too thick, gradually add a little bit of water until it reaches the right consistency. If it's too watery, add small amounts of dry grout to thicken it.

15

Begin to grout the mosaic.



Re-stir the grout after it sits for about ten minutes. Scoop some grout onto the mosaic. Using a dry sponge and a circular motion, gently work the grout into the spaces between the glass pieces.

16

Thoroughly fill in all of the gaps and let the mosaic sit until you see a slight drying of the grout.



The drying time will take about 10 to 20 minutes depending on the temperature in your work area.

17

Wipe the excess surface grout off of the mosaic.



Rather than using a wet sponge or cloth to wipe off the grout, which tends to remove the grout from the spaces, use a dry cloth or a paper towel, which will wipe off the surface grout only. Having let the mosaic sit awhile, the grout can be wiped off the mosaic very easily. Just keep using a clean side of the cloth or paper towel.

18

Use a dental pick to remove any extra grout on top that is burying the lower lying millefiori.



If any of the millefiori come out during the grouting process, just put them back in with a bit of glue. Leave them to dry while you work on other areas of the mosaic.

19

Check for gaps in the grout around the re-glued millefiori.



To finish with the grouting, come back to any millefiori that had to be re-glued and use the dental tool to gently add grout to the gaps around the millefiori. Leave the area to dry a bit longer before gently wiping off the remaining grout.

When you're finished, throw away the grout container and gloves. Clean your tools but not in the sink, since the grout can accumulate and clog up or damage your plumbing. Allow the mosaic to dry for a couple of hours and do a final buffing with a dry rag to remove any grout haze.

20

Add the finishing touches.



Paint the back and sides with a medium to dark brown paint or other color of your choice. Screw in two D-rings and add hanging wire between them. Sign, date, and title your mosaic, then seal the paint with varnish. All done! Be sure to only hang the mosaic indoors to prevent weather damage.

GPO

Christine Brallier has been creating art since childhood. She grew up in Los Angeles, California, studying art and music throughout high school. Then after years as a preschool teacher, she received her master of arts degree in psychology, focusing on children and art therapy.

*In 2005, Christine discovered and fell in love with mosaics. Her award-winning art has been published in several mosaic books, and her mosaic designs have been installed in public spaces in California, Texas, Kentucky, and the Australia Zoo. Her first children's book, *The Night Before Christmas*, illustrated with her stained glass mosaics, was published in 2013. To view more of Christine's artwork, visit www.cbmosaics.com.*



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Frit Slurry Snowy Scene

Design, Fabrication, and Text by Kelley Mc Hugh



At Creative Paradise, we have been playing around with different ways to use frit on glass. In the following tutorial, we will show you how to turn frit into a paint-like medium in order to design a soft winter scene. This is a cool and unique way to blend frit colors, and all it involves is a splash of water and powdered frit.

This can be a messy process, so prepare to protect your work space with disposable paper and wear your work apron. It's also essential that you remember to wear a respirator mask whenever you are working with frit.

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Frit

F1-200-96 White Opaque Powder

F3-200-96 White Opaque Medium Frit

F1-424-96 Cobalt Blue Transparent Powder

F1-142-96 Light Purple Transparent Powder

F1 1308-96 Pale Blue Transparent Powder

Tools and Materials

Water Spray Bottle Paper Towels

Paper Cups Small Mixing Bowls

Plastic Knife and Spoons Applicator Bottle

G500 Hues 2 Fuse Black Enamel Paint

G600 Hues 2 Fuse Glass Media

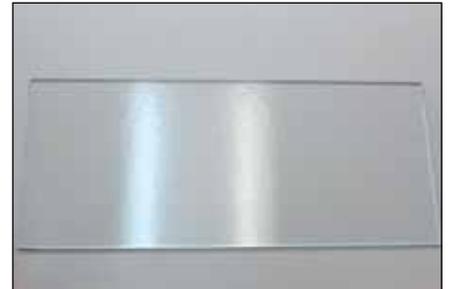
ZYP Boron Nitride Mold Release Spray

Creative Paradise GM71 Wine Rack Mold

Artist Brush Respirator Mask

1

Cut a piece of 96 COE double-thick clear sheet glass to 14-1/2" x 6" for the base.



2

Prepare the frit slurries.



Put the desired color of powder frit into a paper cup or other mixing container. Don't mix different colors of frit together in the same cup. You will need a clean, separate cup for each water and frit mix.

Spritz water into the container until the powdered frit is completely saturated with water and there is a bit of water over the top.

There should be an approximate ratio of 2:1 for frit to water. Use a spray bottle for the best control of the amount of water you are adding. Mix the powder frit and water with a spoon until you have the consistency of pancake batter. This is how you will make all of the frit slurries.

Make all four frit slurries in their own individual containers. Start with about 2 tablespoons of each color. You can make more slurries as you go along to fill in various areas of the glass. Before you begin to apply the slurries to the base glass, treat your GM71 Wine Rack Mold with a suitable glass separator such as ZYP or Primo Primer.

3

Apply the White Opaque slurry to the bottom of the piece with a spoon to create the snow.



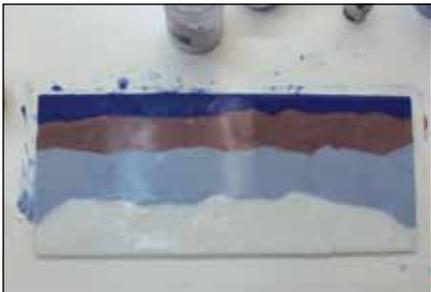
4

Follow the White Opaque slurry with stripes of Pale Blue and Light Purple slurry, then the Cobalt Blue slurry for the top of the skyline.



5

Gently shake the glass from side to side to evenly distribute the slurries on the glass and to smooth out any random bumps.



6

Use a plastic knife to gently drag slurries into one another to blend the colors.



This creates unique ripples and frit color movements in the glass when it is fired. If needed, spray water on the piece to create a smooth blend of frit colors.

7

Gently shake the glass from side to side to blend and even out the slurries.



Spray the slurries with water to further enhance the color blend.

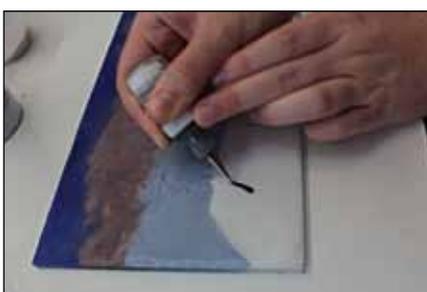
8

Using a knife, skewer, or needle tool, gently sketch out the tree trunk and limb designs in the slurries.



9

Add the black tree trunk and limb shapes.



In a 2:1 ratio, mix the G500 Black Hues 2 Fuse Enamel with the G600 Glass media. Pour this mixture into an applicator bottle and gently squeeze the mixture into the sketched out tree lines on the slurry.

10

Use the black enamel to add little birds to the winter scene.



11

Sprinkle some White Opaque medium frit onto the slurry to create falling snow.



GLASS ART

The Magazine for the Creative Professional
Working in Hot, Warm, and Cold Glass

If you're searching for ways to make your glass art business more profitable, look no further than the pages of *Glass Art*. Each issue is filled with inspiration from studio artists and retailers who share innovative ways to flourish in the exciting world of glass.

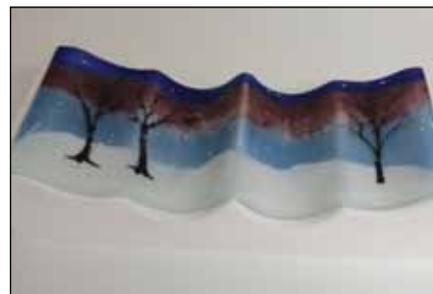


The January/February 2017 issue features the work of outstanding artists including glass pioneer Ginny Ruffner, murrine artist Ken Schneidereit, and many other glass art experts. You'll also find glass painting tips from Peter McGrain and so much more. Visit www.GlassArt.com to subscribe today.

Rembrandt Triple Portrait by Ken Schneidereit
Photo by Jim Ginney

You can use the tip of an artist brush to gently reposition the pieces of frit, if desired. When the winter scene is complete, clean the edges of the glass with a paper towel to remove any excess slurry that may have dripped over the side. Let the slurry dry completely before you fire it.

Fuse and slump the panel on the GM71 Wine Rack Mold that you prepared earlier with the ZYP Boron Nitride Mold Release Spray.



This piece can be fused and slumped at the same time using the recommended schedule below. You can read important notes at www.creativeparadiseglass.com before using our recommended firing schedules. Also remember that all kilns fire differently, so you may have to make adjustments in the schedule to fit your own particular kiln.

Combined Fusing and Slumping Schedule

- Segment 1: Ramp 150°F/hr to 200°F and hold 30 min.
- Segment 2: Ramp 250°F/hr to 1215°F and hold 45 min.
- Segment 3: Ramp 50°F/hr to 1250°F and hold 20 min.
- Segment 4: Ramp 400°F/hr to 1410°F and hold 1 min.
- Segment 5: Ramp 9999 (AFAP*) to 950°F and hold 75 min.
- Segment 6: Ramp 100°F/hr to 500°F and no hold.

*as fast as possible

GPO

Tips for Success

- Create your frit slurry piece on a paper towel. The project gets very messy.
- Use powder frits to make the frit slurries.
- Use a paper towel to clean the edges of the mold, which may have stray bits of frit or excess slurry.
- Remember that if frit strays or gets somewhere you don't want it to, then it was just meant to be!

Kelley Mc Hugh earned her degree in journalism from Griffith College in Cork, Ireland. She has lived in the Middle East, Ireland, and England, and now resides in Kansas.

Kelley is the social media and website content manager for Creative Paradise, Inc., and helps to create projects and write tutorials using Creative Paradise molds. Visit www.creativeparadiseglass.com for more tutorials and important firing notes.



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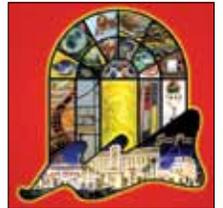


Wissmach Glass Co. has many options for glass artists in its **Kiln Glass Catalog of Wissmach 90™ and Wissmach 96™ products**. Kiln Glass Variety Boxes come in four different glass selections for Standard, Deluxe, Basic, or Prisma glass and offer three different sheet sizes that are appropriate for studios, instructors, or students. Cullet in 90 and 96 COE is also available and provides an affordable way for glass fusers to obtain perfect fusing glass for casting, pot melts, vitrigraph stringers, and frit making. Several videos and some free tutorials are available on the company's website, all using Wissmach Glass™ Cullet. Visit the website to find these great compatible-tested glasses, glass sample sets, and so much more.

304-337-2253 wissmach@frontier.com
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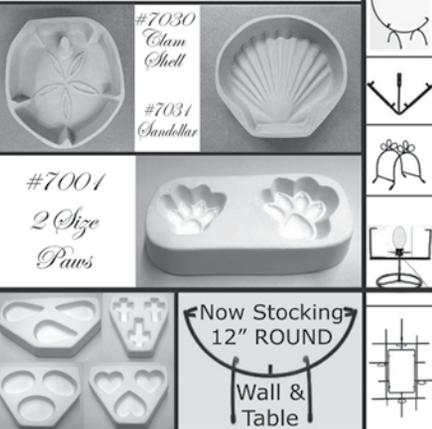
The **Glass Craft & Bead Expo** will again be presenting its **Live Demo Stage** Friday through Sunday, April 1–3, 2017, at the annual conference in Las Vegas, Nevada. The demonstrations are sponsored by sister publications *Glass Art*, *Glass Patterns Quarterly*, and *The Flow*. Well-known artist/instructors include Randy Wardell, Poppy Mussallem, Margaret Zinser, Jackie Truty, Susan Hirsch, Rosalind Stanton, Margot Clark, Lisa St. Martin, Petra Kaiser, Jeri Warhaftig, Filip Vogelpohl, Jennifer Walkovich, and Dennis Brady. More details for the Expo will be available soon on the organization's website.

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ISGB

The **International Society of Glass Beadmakers (ISGB)** is pleased to announce that it will be holding its annual conference, **The Gathering, March 28–April 2, 2017**, in Las Vegas, Nevada, alongside the Glass Craft & Bead Expo. Both events will take place at the South Point Hotel & Casino. The events will still be operating independently, but the partnership will offer an unprecedented experience for glass enthusiasts. ISGB will be holding classes on Tuesday and Wednesday as well as its usual program in four rooms designated for that purpose. ISGB instructors will also have the option to apply for teaching the rest of the week at the Glass Craft & Bead Expo. Combining these two events is expected to bring in additional students across the board. Visit the ISGB website for more details.

614-222-2243 admin@isgb.org
www.isgb.org

Glass Accessories International has debuted its **new Toyo TC-70 Trac Wheel oil glass cutter**, a revolutionary new wheel that features micronotches along the edge of the wheel. The notches, which are measured in microns and not visible to the naked eye, provide traction for the wheel as it starts rolling on the glass, reducing chances of the wheel skipping. Manufacturing applications using this new wheel yield a significant increase in wheel life, clean scores, and clean breakouts. Starting the first quarter of 2017, the TC-70 will be available in both Pattern and Straight blade options. Trac Wheel replacement blades will be available at the same time as the cutter and will fit all Toyo cutters that currently accept the TC-10H and TC-17H blades. A Trac Wheel option is anticipated to be available on multiple handle styles later in 2017, and pricing for the Toyo Trac Wheel is expected to be the same as other Toyo cutters with similar handles.



info@glassaccessories.com
www.glassaccessories.com

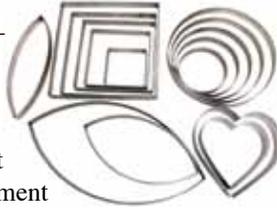


Paragon Industries presents the **Sentinel Smart Touch**, a new optional touch screen controller. The Sentinel uses the same wiring harness as Paragon's standard Sentry 12-key controller and can replace the 12-key on existing Paragon kilns. It can be updated through Wi-Fi, and custom Ramp-Hold programs can have a program title entered through the touch screen. The firing schedule can be edited during firing using Skip Step, Add Segments, Add Temperature, and Add Time. The Sentinel can also turn a kiln vent on or off for each segment of a program. Visit the company's website for more details.

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AAEGlass.com is excited to announce that its new online **Education Center** is now live. In development for almost a year, this is one of the biggest projects the company has ever undertaken and will change the way glass artists learn fused glass techniques. Through the Internet from anywhere in the world you can learn the same techniques that Tanya teaches in her workshops plus additional classes. She will be offering several beginner and advanced paid video lessons that accompany the dozens of free video tutorials she currently offers. You will now be able to learn from Tanya online at your own pace in your own home or studio. There will also be paid tutorials, product videos, and marketing articles plus tips and tricks for fusing glass designed to help you grow as an artist as well as a business. The company will be offering education coins with purchases that can be collected and used as discounts for paid videos. 239-471-7724 info@aaeglass.com
www.aaeglass.com

Morton Glass Works presents the **Cutter Slide**, a new accessory for the Portable Glass Shop. Using the slide, which is comparable to the training wheels on a bicycle, along with the video on the company's website, glass artists will quickly learn the most important shortcut to using the Portable Glass Shop—how to score perfect, straight lines. The Cutter Slide's window can be turned toward the left or right side of the Cutting Bar. You'll want to practice using both sides, since it's important to learn how to score down the left and right sides of the bar. These shop components, sized for use with a standard-width 5 mm cutter head, are also designed to help glass artists learn to prevent two common problems—tilting the glass cutter at an angle and holding it too tightly to the cutting bar. The Cutter Slide will give you instant feedback to let you know if your cutting techniques need correction. With practice using the slide, you will soon be able to make perfect scores on you own. Visit the Cutter Slide video link at the bottom right of the website home page for a video on using these great products.

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GPQ

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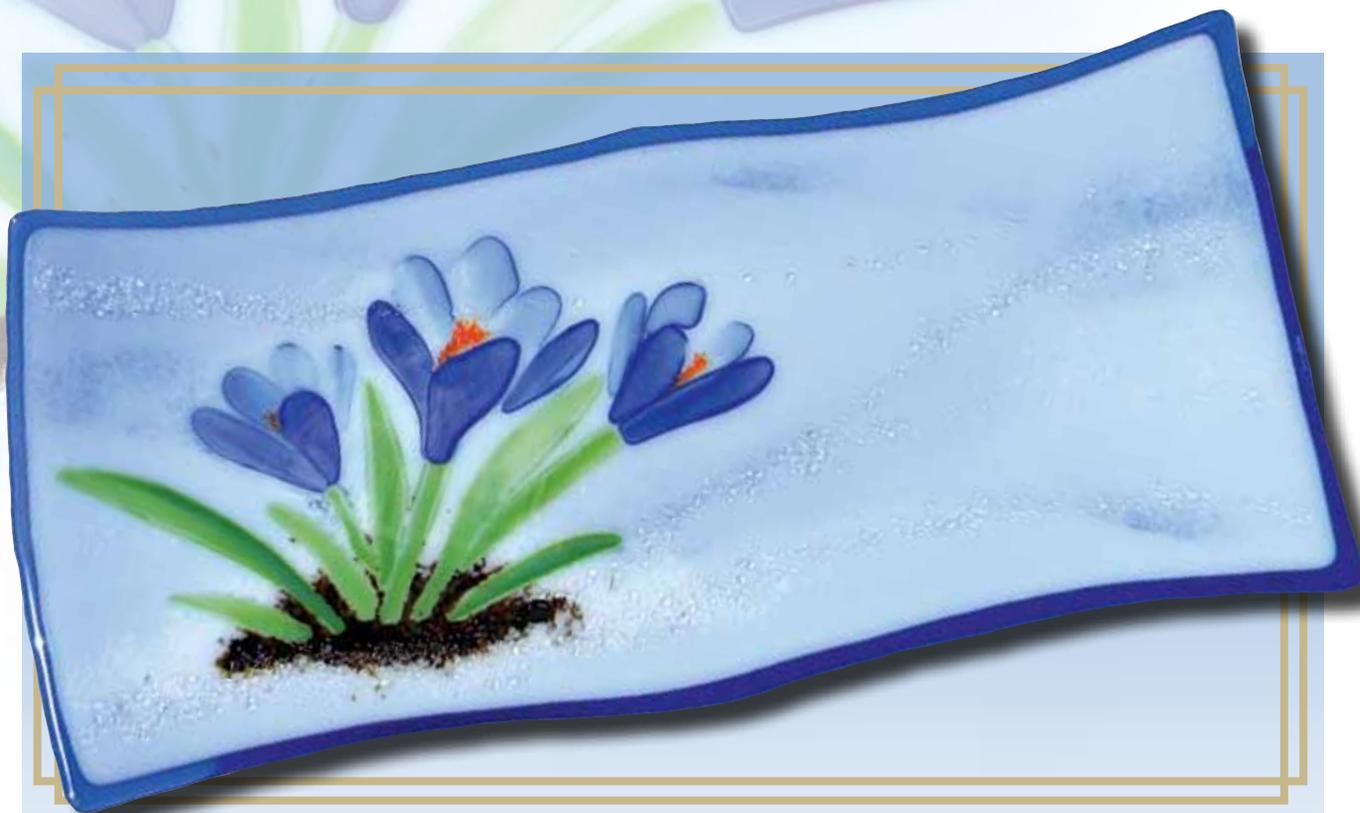
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Winter Crocus

Design, Fabrication, and Text by Lisa Vogt



Crocuses are a welcome sign that spring is on the way. As winter withdraws, these perky little flowers bring the first splash of color to snowy landscapes. Naturally grouped in showy clusters, these bulbs offer a spectacular range of bright blue, yellow, orange, purple, and white color mixes. Don't hesitate to shake up the flower colors when selecting glass for your plate.

Begin by cutting layers one and two of the plate according to the pattern. Layer one, the base layer, is slightly larger than layer two. The narrow rim that remains exposed makes a delicate border. For layer one, I chose a transparent blue that would complement the flower colors. For layer two, I selected plain white so I could later create shading and contours with frit.

Wissmach 96™

96-03 White for Background, 1-1/2 Sq. Ft.

System 96®

Sheet Glass

Spectrum 132SF Light Blue for Base, 1-1/2 Sq. Ft.

Uroboros 60-4245-96 Cobalt Blue Transparent/White for Flowers, 1/4 Sq. Ft.

Uroboros 60-7555-96 Fern Green Opal/White for Leaves, 1/4 Sq. Ft.

Frit

F3-2116-96 Chocolate Opal, Medium

F3-111-96 Dark Amber Transparent, Medium

F3-200-96 White, Medium

F1-5386-96 Navy Blue Transparent, Powder

F2-171-96 Light Orange Transparent, Fine

F3-01-96 Water Clear, Medium

Tools and Materials

Respirator Mask Fusers Glue Sifter

Stiff Paper Glue Stick Paint Brushes

15" x 7-1/2" Slumping Mold

1
Cut out the pattern pieces for the flower petals and leaves and glue the paper onto the glass with a glue stick.



2
Cut the glass as close to the pattern as possible.



3
Grind the pieces to ensure a nice fit, then clean and dry the glass.



Stack the main white glass layer on the blue glass base layer and set the pieces aside.

4
Use fusers glue to fix the flower and leaf pieces to the white glass.



Using the pattern as a guide, cut the flower and leaf pieces. I selected glass with soft color changes that would make my flowers and leaves appear three-dimensional.

Grind the cut pieces, then lay them on the pattern to check the shapes and the fit. Once you're satisfied with the shapes, arrange the flower and leaf pieces on the top white glass layer. Hold the glass in place with a small dab of fusers glue. Allow the glue to dry before proceeding. Otherwise, the glass will slide around when you apply the frit.

5
Apply the brown and white frit around the base of the flowers.



Make the thawing patch of soil that these brave flowers sprout from using a spoon to spread the chocolate and dark amber frits around the base of the crocus plant. Surround the soil color with white frit to create a snowy rim around the newly exposed dirt.

6
Create a template to use when sifting the powder frit to create subtle snow drifts.



Using scissors, cut a gradual curve out of stiff paper or poster board. Gently lay the template on the project. Be sure to wear a respirator mask for this step and any time you are working with glass frit.

Sift a small amount of navy blue powder along the paper's edge. Carefully remove the paper. Pour the excess frit onto a spare sheet of paper so you can reclaim it later. Repeat this step several times until you have a soft, hilly setting for the flowers.

7
Fuse the glass according to the following firing guide.



Remember that all kilns fire differently. Test the guides provided with this tutorial in your own kiln and make any necessary adjustments.

Fusing Guide

- Segment 1: Ramp 300°F/hr to 1300°F and hold 30 min.
- Segment 2: Ramp 500°F/hr to 1465°F and hold 10 min.
- Segment 3: Ramp 9999 (AFAP*) to 960°F and hold 40 min.
- Segment 4: Cool to room temperature.

*As fast as possible

8

Add some icy texture to the winter landscape with the clear medium frit.



Using a spoon or similar tool, draw several frosty arches across the snow blanketed field.

9

Create stamens for the centers of the flowers with a touch of orange frit.



10

Clean up any stray frit with a small dry paint brush or similar tool.



Slump the fused glass in a 15" x 7-1/2" mold using the schedule suggested below, adjusting as necessary for your own kiln.

11



Slumping Guide

- Segment 1: Ramp 300°F/hr to 1265°F and hold 10 min.
 - Segment 2: Ramp 9999 (AFAP*) to 960°F and hold 40 min.
 - Segment 3: Cool to room temperature.
- *As fast as possible

The wonderful thing about using the slumping temperature to attach the frit to the plate is that the frit retains its distinctive texture. Grainy frit reflects more light and, therefore, enhances the frosty mood of this winter garden.

This sparkly plate is great for home decoration or for serving wrapped food items. Due to the obvious texture, however, it doesn't have a suitable food bearing surface. Of course, you can always apply the clear and orange frit prior to fusing for a smooth, easy to clean finish.

As winter wears on, take joy in the coming of spring and plant your own showy garden of crocuses in the icy snow. Welcome, spring!

GPO



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For more than 25 years, award-winning artist Lisa Vogt has drawn upon her fine arts background and her own sense of style, drama, and whimsy to develop innovative glass techniques for limitless design possibilities. Her work has been exhibited in major cities throughout the United States. She is also the author of 14 design books and a series of instructional videos in addition to frequent articles for industry magazines and fiction for publication.



Lisa lectures at national and regional seminars and has been a featured artist on HGTV, PBS, and Glass Patterns Quarterly Webinars. A huge supporter of public art, Lisa regularly contributes artwork for auction to benefit local, regional, and national charities. Her home and studio are located in Wesley Chapel, Florida, where she resides with her husband and two daughters. Visit www.LisaVogt.net to find out more about her work and seminars.

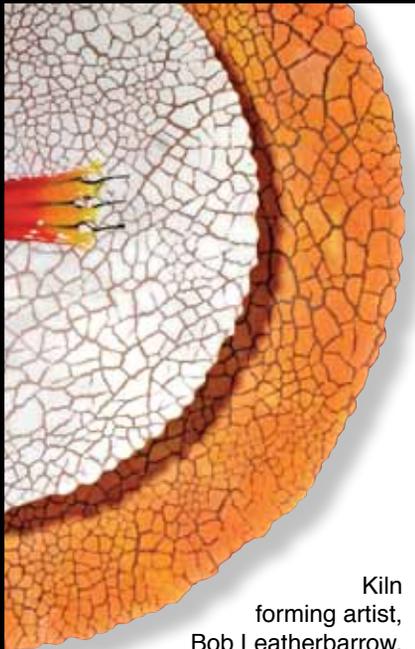
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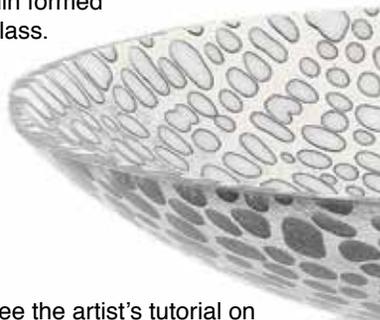
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Kiln Worker Bob Leatherbarrow on Talking Out Your Glass podcast

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Kiln forming artist, Bob Leatherbarrow, is known for his innovative styles, techniques, and designs. Taking an experimental approach to developing unique textures and color palettes, he uses glass powders and explores the subtle hues and delicate beauty of naturally occurring textures. A popular instructor on the international kiln formed glass scene, he also writes e-books on his signature techniques. Join us for this fascinating conversation with Leatherbarrow about his techniques and aesthetic approach to kiln formed glass.



See the artist's tutorial on powder wafers in *Glass Art* magazine's November/December 2016 issue and a feature on his art in the January/February 2017 issue.

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Fused Valentine Favorites

Combed Glass and Scrap Melt Hearts

Design, Demonstration, and Text by Laurie Spray

Everybody loves hearts. They are fun to give and to receive. Here are two different fusing techniques that will assure you'll never have the same design twice.

Glass combing is the process that manipulates molten glass with a stainless steel metal combing tool right inside the kiln. This procedure creates exciting swirls and patterns never seen before. The second part of this tutorial shows you how to create scrap melts by using the same heart mold and kiln preparation, only using chunks of glass, frit, and stringers to create a unique design minus the combing. You can mount the finished piece in a frame or slump the heart in a Bonny Doon Bottomless Mold for a low profile dish.



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Tools and Materials

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Zetex or Kevlar Heat Protection Gloves
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Ceramic Mold for Slumping Scissors
Diamond-Tipped Dremel® Tool

Combed Hearts

Select the desired size heart mold and insert a strip of 1/8" fiber paper around the inside of the heart.

1



Select the 8" or 10" size stainless steel heart form you will be using for the project. Measure the strip of 1/8" fiber paper that will go inside the heart form by wrapping it around the heart to get the approximate length needed. A bit more than you actually need is best.

Put the stainless steel form onto a freshly kiln washed shelf. Fold the fiber paper strip in half and gently place it against the inside of the heart with the fold at the top. Bring the ends of the strip together at the bottom point of the heart and clip them with a scissors so that they meet but do not overlap.

Firmly crease the fiber paper strip in the middle. This will become the crease at the top part of the heart. You can take the strip outdoors and spray it with a boron nitride spray in order to end up with a smoother finished edge for the glass. Be sure to use a respirator mask or other protection when spraying the boron nitride to avoid inhaling any of the spray.

2

Close the gap between where the two halves of the fiber paper meet at the bottom of the heart.



Cut a small 2" piece of thin fire shelf paper and fold it in half. Place it behind the junction of the 1/8" fiber paper at the bottom of the heart. This is insurance against a gap where the glass would contact the stainless steel. Press the 1/8" fiber gently down onto the kiln shelf so that there are no gaps between the fiber and the shelf.

3

Fill the heart form using whatever scrap glass you have available.



In the 8" mold for a heart that is 3/8" thick you will need a total of 1-1/2 pounds (680 grams) of scrap glass pieces. The 10" mold for a heart that is 3/8" thick requires a total of 2-1/2 pounds (1133 grams). Here I used 1" to 2" chunks of pattern bars with other scrap glass in between.

Note: It's essential that all of the scrap glass you are using is the same COE. Keep the glass separated a bit from the fiber paper so that when the glass melts it will flow "to" the fiber not "down" the fiber. Fire your kiln by ramping 450°F/hour to 1660°F for combing.

4

Get your heat resistant gear ready while you are waiting for the kiln to reach the peak temperature.



You will need to have your Zetex or Kevlar gloves handy plus a face shield and a bucket of water for cooling your hot combing tool. Take special care to use heat resistant gear. You will be opening your kiln when it reaches the correct temperature, so you don't want the heat from the open kiln to burn anything near the kiln, especially you.

See the supply list for suggested safety equipment. Other safety gear to consider includes welding glasses, welding jackets, cotton or wool clothing worn under the protective gear, a container of water large enough for your raking tool, and hair ties if your hair is long.

5

When the kiln reaches 1660°F, open the kiln door and begin to comb the glass.



Turn the kiln off while combing. If the combing tool accidentally hits an element, you will get quite a shock. You must reset/restart the kiln each time you close the lid.

At 1660°F, open the kiln and use the combing tool to gently move the glass in small 3" to 4" swipes, keeping the tool away from the fiber. Do not comb too deeply. Combing just the surface of the glass is all that is needed.

You do not want to disturb the kiln wash or fiber paper. When you feel the glass getting firm, close the lid and reheat. You will need to do this several times until you have the look that you want.



6

When you feel that the heart is finished, give it time to settle out.



I let the kiln heat one more time to 1600°F, then go to anneal. Use the following suggested firing schedule, remembering that all kilns fire differently. You may need to adjust the schedule to fit your own particular kiln.

Final Firing Schedule

- Segment 1: Ramp 9999 (AFAP*) to 1600°F and hold 5 min.
 - Segment 2: Ramp 9999 (AFAP*) to annealing temp** and hold 2 hrs.
 - Segment 3: Ramp 50°F/hr to 800°F and no hold.
 - Segment 4: Ramp 100°F/hr to 700°F and off.
 - Segment 5: Let kiln go to room temperature before opening.
- *as fast as possible
 ** Annealing temperatures vary with the COE of the glass used. For COE 96, ramp to 960°F and 900°F for COE 90.

After firing, remove the glass heart from the form and use a diamond hand pad to clean up the edges. You can also put it back in the kiln if there are any imperfections in the surface and take it to a full fuse. If there are any pinholes, I open them with a diamond-tipped Dremel tool and water.

When re-firing without the stainless form, the heart will retain its heart shape and spread a bit to give it a nice rounded edge. Doing this as an additional step will give you two different size hearts from one size stainless steel form.

Re-Firing Schedule

- Segment 1: Ramp 250°F/hr to 1480°F and hold 20 min.
 - Segment 2: Ramp 9999 (AFAP*) to anneal and hold 90 min.
 - Segment 3: Ramp 50°F/hr to 800°F and no hold.
 - Segment 4: Ramp 100°F/hr to 700°F and off.
- *as fast as possible

After re-firing, the heart can be mounted as it is or slumped into a mold.



Slumped Scrap Melt Heart

The beginning steps for the Slumped Scrap Melt Heart are the same as for the Combed Glass Heart. Both versions use the same tools with the exception of the combing tool and the protective gear.

1

Prepare the heart-shaped mold in the same way as for steps 1 through 3 for the combed glass heart.



2

Break some clean, clear glass scrap and divide the larger pieces from the finer glass.



Take some clean clear glass scrap and hit it with a hammer. Screen off all the fine glass pieces and powder, since they will cloud up the melt.

3

After weighing the scrap glass, add the clear in first with the colors mixed into the top layer.



This will diminish the ghosting you can get from clear scrap. Try to keep the glass pieces positioned in a bit from the fiber. Add colored frits and stringers or other colored scrap glass. Use a total of 1-1/2 pounds (680 grams) for the 8" mold and 2-1/2 pounds (1,133 grams) for the 10" mold. Fire the kiln according to the following schedule, remembering that each kiln is different and you might have to make adjustments for your own kiln.

Initial Firing Schedule

- Segment 1: Ramp 250°F/hr to 1100°F and hold 15 min.
 - Segment 2: Ramp 50°F/hr to 1225°F and hold 30 min. for a bubble squeeze.
 - Segment 3: Ramp 450°F/hr to 1480°F and hold 20 min.
 - Segment 4: Ramp 9999 (AFAP*) to anneal** and hold 2 hrs.
 - Segment 5: Ramp 50°F/hr to 800°F and no hold.
 - Segment 6: Ramp 100°F/hr to 700 and off.
- *as fast as possible
 ** anneal at 900°F for 90 COE and 960°F for 96 COE

Clean up and slump the heart in the same manner as for the combed heart.

4

Slump the scrap melt heart in a ceramic mold.



For this heart I used a Bottomless Bowl mold, since they always give the glass form a flat bottom with no rocking. The following schedule should be altered according to how thick your final heart is, but here is the standard that we use.

Slumping Schedule

Segment 1: Ramp 250°F/hr to 1150°F and hold 5 min.

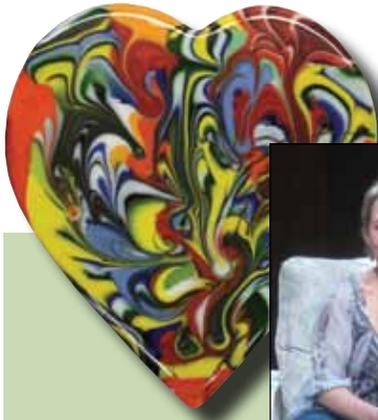
Segment 2: Ramp 50°F/hr to 1200°F and hold 5 min.

Segment 3: Ramp 9999 (AFAP*) to anneal and hold 90 min.

Segment 4: Ramp 100°F/hr to 700°F and off.

*as fast as possible

GPO



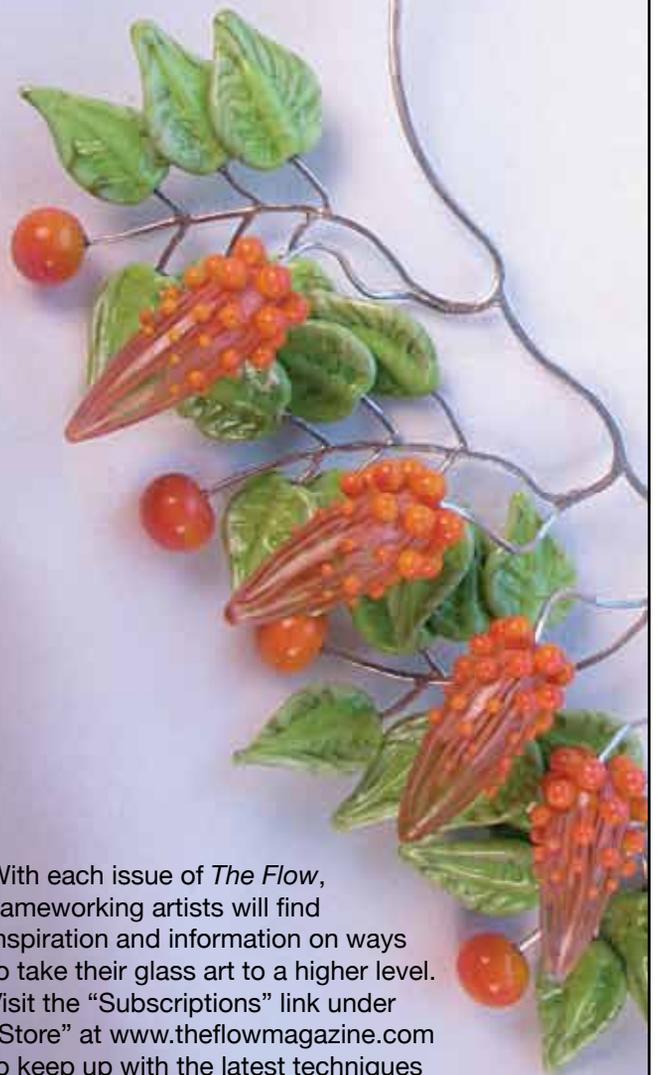
Laurie Spray has been a full-time artist since 1978. She began as a potter doing 40-plus shows a year and in the 1980s started to play with fused glass. When Joel Spray retired from a 40-year chemical engineering and biotech career, he joined Laurie full time in their business, Bonny Doon Fused Glass Tools.

After being frustrated by many commercial fusing molds where the glass rocked after slumping, Laurie began to hand throw her "Bottomless Molds" on the potter's wheel. The couple also came up with a high-quality line of innovative stainless steel molds for their customers, which they ship all over the world.

Classes at the Bonny Doon Studio range from visiting glass artists/teachers to Laurie teaching everything from Vitrigraph Cane to Melts and Flows. Their production studio is well equipped with 13 kilns, since they also produce a quantity of fused glasswork for galleries. Located in a redwood forest in the Santa Cruz mountains just south of San Francisco, California, the business is open by appointment to welcome visitors to the Sprays' studio/glass gallery and surrounding area. Visit www.bonnydoonfusedglasstools.com for more information.

Celebrating Women in Glass

Join The Flow magazine for its 12th Annual Women in Glass issue. This Winter 2016 edition presents fresh, new tutorials plus an expansive gallery featuring the work of 160 exceptional female artists who provide an exciting look at today's innovative flameworked glass.



With each issue of *The Flow*, flameworking artists will find inspiration and information on ways to take their glass art to a higher level. Visit the "Subscriptions" link under "Store" at www.theflowmagazine.com to keep up with the latest techniques and begin a great glass adventure with *The Flow*. This fabulous issue mails on December 19, 2016.

Christi Klein

Holiday Painted Fused Glass Candle Shield

Design, Demonstration, and Text by Dana Worley

For many of us, the season of holiday gift giving is just around the corner. Whether you are making fused glass items to sell in a holiday market or to give as gifts to family and friends, you may be looking for something that has inexpensive material costs but is still beautiful and unique.

The following tutorial uses clear glass, glass paints, and mica powder to create a one-of-a-kind candle shield that is perfect for your holiday needs. You'll learn how to measure the size of glass for a slumping mold, work with mica powders and frit, and cold work the edges of your glass with minimal equipment.

Using paints and mica is a great way to turn a piece of clear glass into a colorful work of art. The ideas in this tutorial can be used with any type of clear glass you have available, whether it is Bullseye, Uroboros, Spectrum, or Wissmach. You can even use float glass, but the firing schedules will need to be adjusted.



Glass

Clear Glass for Shield, 8-1/2" x 4-1/4" (2)

Clear Glass for Shield Base, 8" x 5" (2)

Clear Coarse Frit

Sky Blue Coarse Frit (optional)

Unique Glass Colors (UGC)

Artisan Colors

615 White Glo

607 Mystic Blue

UGC Medium

Colors for Earth (CFE)

Deep Cranberry

Sapphire Blue

CFE Medium

Tools and Materials

Colour de Verre Rounded Lamp Panel Former

Sepp Leaf Aztec Gold Mica Powder

Fuse Master Super Spray Overglaze

E6000 or Other Glass Glue

Graph Paper Paper Towels

1

Pour some of the clear coarse frit into a small container and mix with the Super Spray Overglaze.



You want enough liquid to wet the frit, but you don't want it dripping.



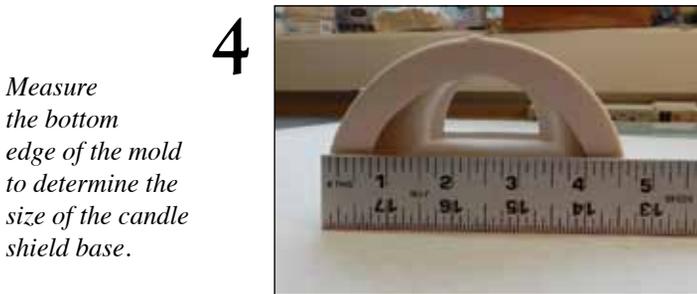
2
Sprinkle a small amount of mica powder in the container and mix well.

Spread out the mica-covered frit onto a paper towel and set it aside to dry.



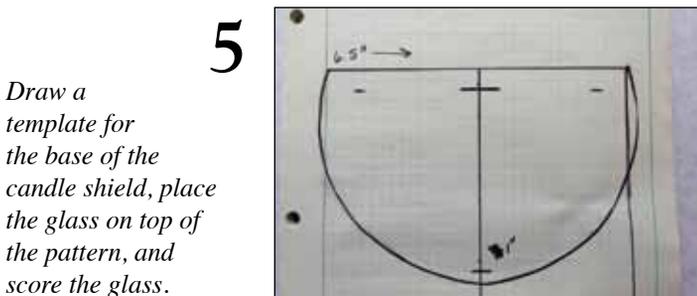
3
Measure the mold to determine the size of the glass pieces needed.

Use a tape measure to measure the size of glass for the mold. This mold is approximately 8-1/2" from one side across the arc to the other side. I decided to cut my two pieces of glass for the candle shield to 8-1/2" x 4-1/4".



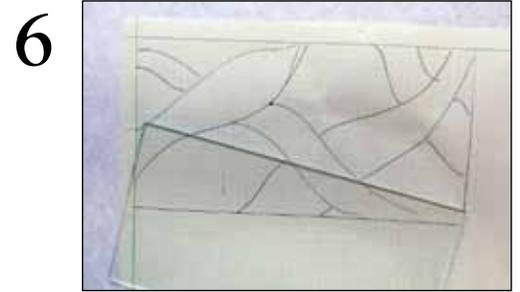
4
Measure the bottom edge of the mold to determine the size of the candle shield base.

This mold measures 4-1/2", so I decided to make the width of my candle base 6-1/2".



5
Draw a template for the base of the candle shield, place the glass on top of the pattern, and score the glass.

I find it useful to use graph paper. I used a compass to draw the arc for the shield, though you could also place the mold itself on the paper and use a ruler to draw marks approximately 3/4" around the mold, much like marking the sewing lines for a fabric pattern. Use this pattern for cutting out the two base pieces of glass. You can place the glass on top of the base pattern and score the glass.



6
Plan the painted design.

Even though I will be applying the paints in a free-form pattern, I like to draw out a general design. The graph paper comes in handy for this step as well.



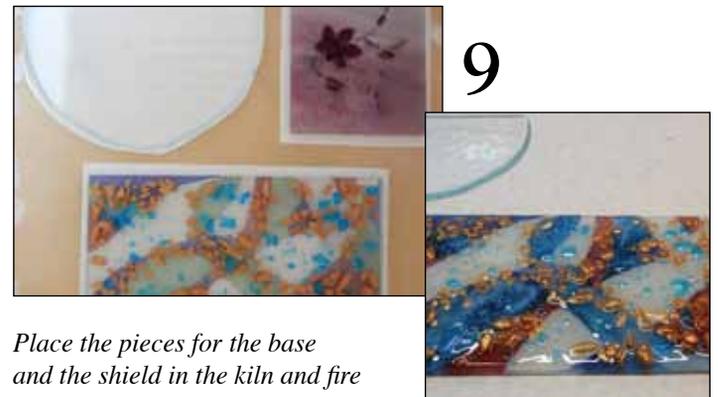
7
Paint the design.

Once you've drawn the design, place one of the candle shield rectangles on top of the pattern. Mix the paints as recommended by the manufacturer and begin painting. Set aside the painted panel and let it dry completely.



8
Cap the painted piece with the other piece of clear glass and decorate it with frit.

When the painted panel is completely dry, top it with the second sheet of clear. Sprinkle on the mica-coated clear frit. Don't cover the painted design completely. Otherwise, you may hide the lovely bubbles you'll get from the UGC Artisan paints. If you choose, add some additional colored frit. I've used a little Sky Blue coarse frit.



9
Place the pieces for the base and the shield in the kiln and fire to a tack fuse.

I started with the schedule below, but based on observation, I skipped to the anneal when the kiln reached 1380°F in Segment 2. Remember that each kiln fires differently, so you may need to make some adjustments in the schedule for your own kiln as well. I also snuck in another small project, since I can't bear to have empty shelf space!

Tack Fuse Schedule

Segment 1: Ramp 300°F/hr to 1100°F and hold 15 min.
 Segment 2: Ramp 300°F/hr to 1420°F and hold 10 min.
 Segment 3: Ramp 1500°F/hr to 950°F and hold 75 min.
 Segment 4: Ramp 100°F/hr to 700°F and no hold.

Once the first fuse is complete, center the piece on the lamp mold and slump-fuse.

10



I used the following schedule.

Slump Fuse Schedule

Segment 1: Ramp 250°F/hr to 1100°F and hold 30 min.
 Segment 2: Ramp 250°F/hr to 1225°F and hold 20 min.*
 Segment 3: Ramp 1500°F/hr to 950°F and hold 75 min.
 Segment 4: Ramp 100°F/hr to 700°F and no hold.

*Watch your slump and adjust the hold time accordingly.

11

Grind and hand-polish the edges of the shield.



If you would like, use a regular tabletop grinder to cold work the edges of the candle base. Start with a coarse grinder bit and shape all of the edges of the base. Now switch to a fine grinder bit and go over what you shaped. Finally, if you have diamond hand polishing pads available, use them to further smooth the edges. Start with the lowest number grit (coarse) and work your way to the highest number grit you have available.

Notice from the picture that the edge of the base was smooth with a matte finish. If I had liked, I could have used it as it was. However, I decided to do a final fire polish using the following schedule.

Final Fire Polish Schedule

Segment 1: Ramp 250°F/hr to 1100°F and hold 30 min.
 Segment 2: Ramp 250°F/hr to 1350°F and hold 5 min.
 Segment 3: Ramp 1500°F/hr to 950°F and hold 60 min.
 Segment 4: Ramp 100°F/hr to 700°F and no hold.

The bottom edge of the candle shield was very even and sat level on the base when I tested it, so I did not need to cold work it further after fire-polishing. You may find you need to grind the bottom, so the shield sits nicely on the base. If you have taken care during the slump to place the glass evenly on the mold, minimal leveling of the base will be required.

To complete the candle shield, run a bead of E6000 or other glass glue along the bottom edge of the shield and set it in place on the base.

12



Follow the glue manufacturer's directions for curing the glue. E6000 should be left undisturbed at least 24 hours.

Whether you're planning to make your candle shields to sell, give to friends, or beautify your own home, painting and using mica to decorate clear glass will provide you with endless possibilities. Use your creative energy to imagine patterns and colors for additional holidays or capture your favorite everyday things, like your last walk on the beach. The sky's the limit.

During the holidays, the store shelves are full of cheaply made, mass-marketed goods. However, I hope you have learned a few tricks from this tutorial that will help you to design creative fused glass pieces that are not only of high quality but also relatively easy on the wallet. So pull out your paints and micas and get creative with your holiday gift giving ideas!

GPO

Lifelong dabbling in various mediums including jewelry design, paper making, fabric art, and stained glass led Dana Worley to her passion for kiln formed glass. While not formally educated in art, she has studied under some of the finest glass artists from around the world and continues to learn and refine her skills. One of her current focuses is on working with powdered glass to create color, texture, and design elements for her art glass bowls and platters.

Dana draws her inspiration from the natural world and loves colors and designs that are bright, happy, and reflect the beauties of nature, as well as the elegance of understated design and the exploration of new techniques. She is a member of The Artists Gallery at the Cache Valley Center for the Arts, a local artists' co-op in Logan, Utah. Her work has been on display in art galleries and juried shows throughout Utah including Logan Fine Art, Ogden Eccles Art Center, Red Butte Garden's Annual Glass Art Show, Bountiful Davis Art Center, and the St. George Museum of Art. Dana maintains a blog on fused glass techniques at jestersbaubles.blogspot.com.



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Polar Bear Motherhood

Design by Paned Expressions Studios, Text by Delynn Ellis

While many can identify the dense white fur and black facial features of polar bears, most don't come in contact with them on a regular basis unless they live in the Arctic areas of the Northern Hemisphere. Female polar bears become fiercely protective mothers and stay with their cubs for over two years. According to Polar Bears International, the animals nurture their cubs and teach them to hunt and survive during this time. Whether you've seen them at your local zoo or in person, they are a delightful creature to observe and a natural representative of the winter season.

This 36" x 24" pattern comes to us from Paned Expressions Studios in its *Nature's Bounty-1 CD*, a collection of over 100 stained glass patterns on one disk. A portion of the proceeds from the sale of the CD is donated to the World Wildlife Fund. These are image files only with no software included on the CD. All patterns are provided in color and black-and-white versions in .JPG, TIF, and EYE formats for both PC and Mac for easy resizing, reshaping, and recoloring. Go to panedexpressions.com to view more pattern possibilities.

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Tools and Materials

7/32" Copper Foil Flux Solder

Black Patina 1/2" U-Channel Zinc

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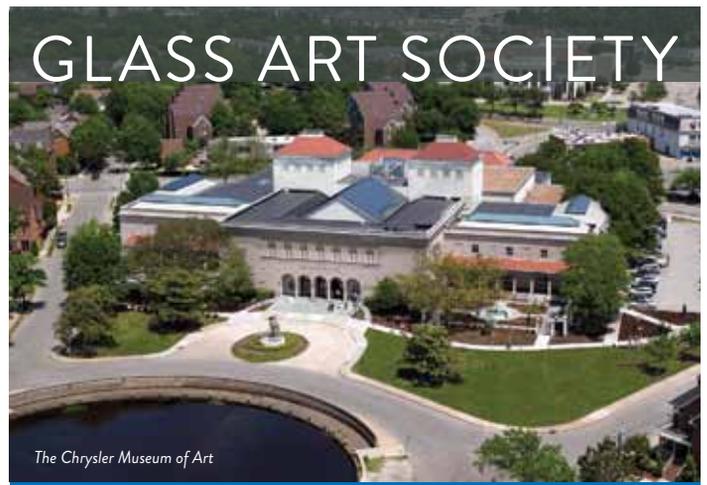
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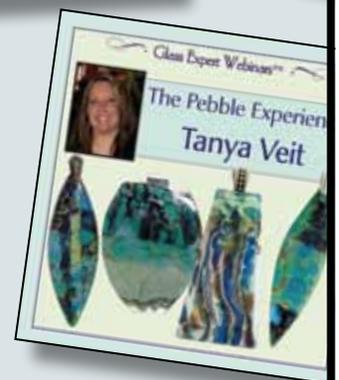
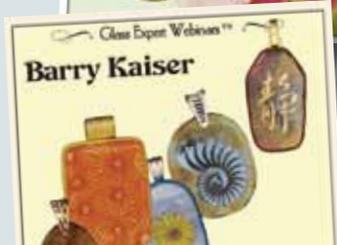
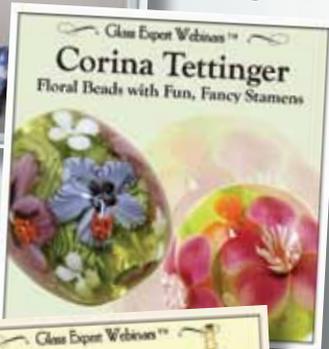
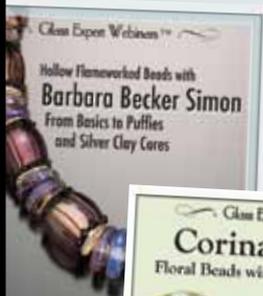
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Representing Your Stained Glass Art in Its Best Light

An Introduction to Digitally Repairing Stained Glass Photos

by Chantal Paré

There are times when you will want to improve the appearance of the photographs taken of your stained glass work. Before getting started on the how-to aspects of that, however, some important questions need to be answered. Why would you want to digitally alter your stained glass pictures? Is that not a misrepresentation?

Camera versus Eye

If a camera works in the same way as the eye does, why is it, then, so difficult to take a photograph of a stained glass piece that actually looks like what your eyes see? No one has studied that in a laboratory, but when you see stained glass in person, with natural backlighting and a three-dimensional context, your brain interprets the actual art in a different way than it does a flat photograph of it seen in low, reflected light.

The outdoor landscape that peers through the transparent areas of your piece, when seen in two dimensions rather than three, is also much more distracting in a photograph than in person. Areas with different amounts of light transmission often create jarring contrasts in photographs. Therefore, there are as many ways to adjust a stained glass photo as there are stained glass pieces. This tutorial should give you some good tips to get you started.

The objective is not to enhance your work, but rather to make the photograph look more like what your brain interprets when you gaze at the real object. Creating professional looking digital photos will improve your website images and the portfolio of your work as well as mend photos submitted for publication.

Tips for Using Raster-Based Graphics Editors

The software I use is Photoshop 5. You can find alternative raster-based graphic editors that do the same operations used in this tutorial, such as GIMP, which is freeware.

Here is a quick outline for those already familiar with the software. Start with two very different photographs taken under similar lighting conditions, which is easily achieved by flipping your piece 180 degrees for the second photograph. Making sure the size of your canvas reflects the proportions of your piece, paste these photos in layers and line them up perfectly. Erase from the top layer the areas where the bottom layer looks better. The following detailed instruction will be helpful to those who are just beginning to use Photoshop.



1

Take multiple photos of the same piece at different angles.



Photograph the piece while trying to achieve the most flattering lighting possible. This may be on an overcast day or a sunny day, depending on the piece itself. Flip the piece 180° and photograph again. You should have at least two photos. Do not worry about the edges not being straight for now.

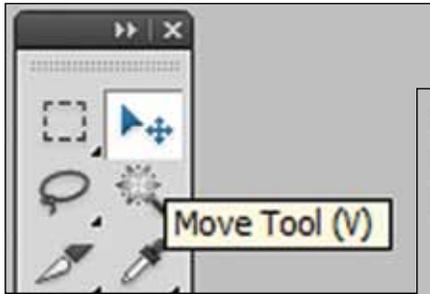
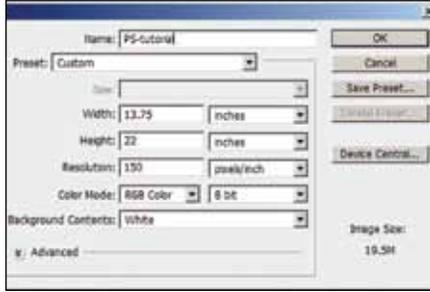
2

Measure the piece and write down the measurement as a memory aid.



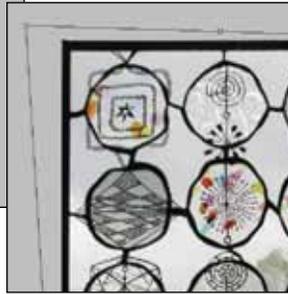
3

From the file menu, choose "New" to open a new document with the dimensions that you have just measured.



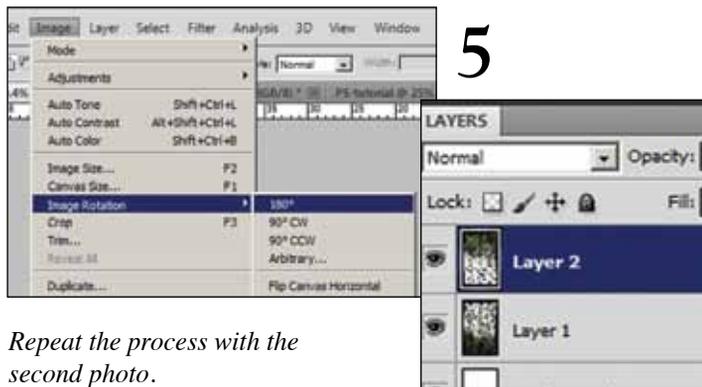
4

Place the first photo into a new document.



After opening the photograph files, choose "Select All" for your first photograph, and "Copy." Next, "Paste" the photograph into your new document. Use the "Move" tool to shrink or enlarge the photograph so that it fits in the frame while pressing the "Shift" key to preserve the proportions. Then, still using the Move" tool but also pressing on the "Ctrl" key to move the corners independently, stretch the photograph to the edge of the canvas, corner by corner.

5

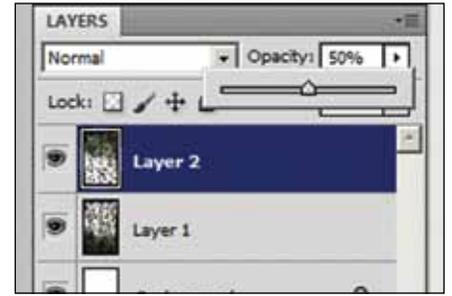


Repeat the process with the second photo.

Take the second photograph, which should be roughly the same as the first, only upside down, and digitally flip it 180 degrees from the "Image" menu. Repeat step 4 with this photograph. Note that each photograph now has its own layer.

6

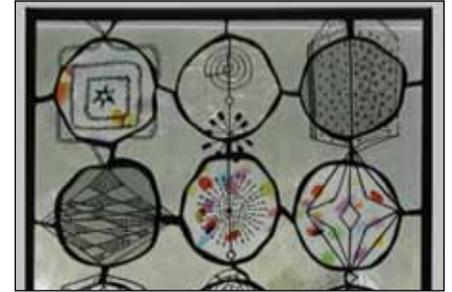
Reduce the opacity of the top layer and make sure the lead lines on both layers line up perfectly.



This is accomplished by using the "Move" tool while pressing on the "Shift" or "Ctrl" key, depending on whether you want to make the adjustments while keeping the proportions or not, respectively. The picture already looks a lot better.

7

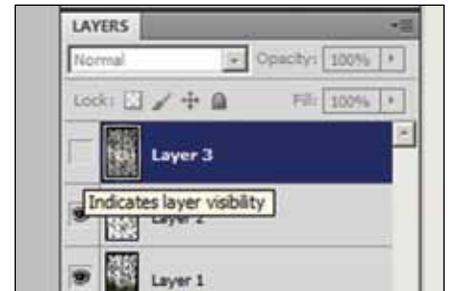
Merge the copies of the photos.



Choose "Select All" and from the "Edit" menu choose "Copy Merged" to paste the photos on top of the existing layer, which will automatically create a new layer.

8

Make the new top layer invisible for now by clicking on the "eye" icon for that layer.



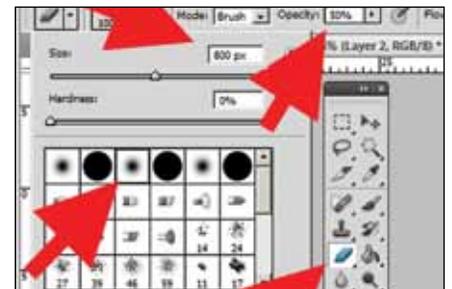
9

Restore the transparency of the second layer you created to 100 percent.

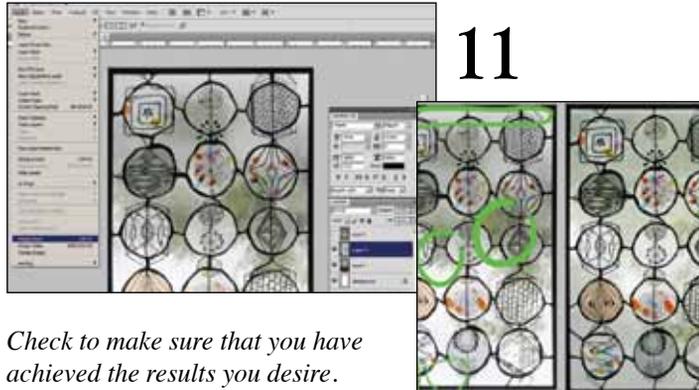


10

Adjust the settings on the "Erase" tool.



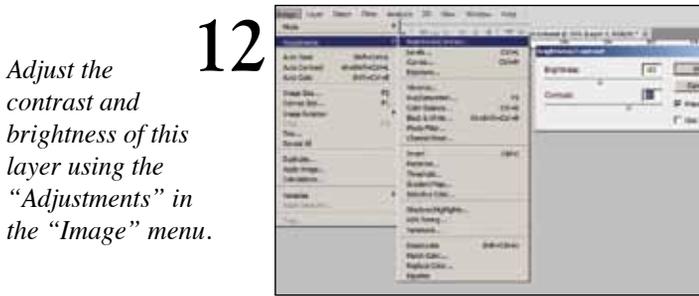
The size of the tool might be smaller or larger, depending on the size of the picture or what you would like to erase. With the erase tool, you can remove any problem areas in the top layer, which will seamlessly reveal the bottom layer. The opacity is reduced. There is also a large, fuzzy eraser that is useful for making gradual changes with soft edges.



Check to make sure that you have achieved the results you desire.

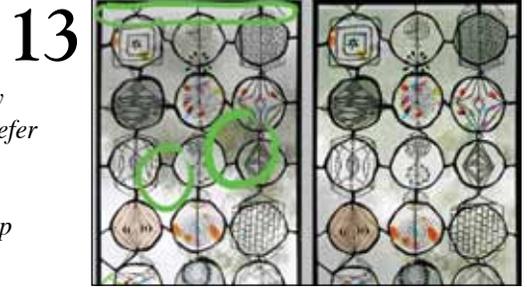
Here a bit of the top of the layer was deleted. The results are good, and the two visible layers are merged from the “Layer” menu as shown.

There are now two layers. One was created directly by flipping one photo and superimposing it onto the other. The second layer was created by erasing the problem areas of the top photo. Toggling between the visibility of the two layers I have kept for comparison, I find that the merge from just flipping the photos is a bit dark and needs adjustments.



Adjust the contrast and brightness of this layer using the “Adjustments” in the “Image” menu.

Toggle between both layers to identify the areas you prefer from the bottom layer, then erase them from the top layer to uncover them.



Once you are satisfied with the results, from the “Layer” menu, flatten the layers or merge all of the layers and save your final copy. You can make further adjustments to taste from the “Image” menu. Here I increased the saturation across all of the colors a bit for some extra pop.

GPO



More than a decade ago, Chantal Paré quit the fast-paced world of molecular biology to devote herself to the full-time pursuit of glass. To Chantal, nothing else comes close to creating an object through which light can pass the same way it does through water. She's liable to melt it, blow it, break it, paint it, or cast it, just to show it who's boss.

In her free time, Chantal draws patterns in a variety of styles ranging from Victorian to geometric and self-publishes them on the Internet. Lately she's concentrating her efforts on glass painting.

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Celtic Cross

First Rendering by Franci Claudon, Text by Darlene Welch



The Celtic cross was first introduced to post-Roman Britain and Ireland by Saint Patrick as he sought to convert the pagan Irish to Christianity. One belief says that since some of them worshipped the sun, he combined the Christian cross with the circular pattern of the sun as a way to associate light and life with the Christian cross in the minds of his converts. There are many other explanations as well, including the practicality of craftsmen who carved the crosses from stone and added the center circle to make them sturdier and better able to withstand harsh weather.

This 36" x 36" panel, designed by Jeffrey Castaline and Hiroyuki Kobayshi of Aanraku Glass Studio with first rendering by Franci Claudon, is from their 26-pattern book, *Eclectic VI: From the Original Collection Volume 6*. The way the panel pieces fit together in the center Celtic Cross and its surrounding Celtic Knot plus a careful selection of the glass grain perfectly capture the unending flow that is the hallmark of these Celtic motifs. Visit www.abasg.com to find additional patterns from Aanraku.

GPO

Wissmach Glass Company

8-D Gold Pink/Cobalt Blue

for Inner Background, 1 Sq. Ft.

12-L Copper Red/Light Opal/Crystal

for Center Cross, 1-1/2 Sq. Ft.

WO-238 Dark Purple/Dark Blue/Yellow Green/Opal/Crystal

for Outer Design, 5 Sq. Ft.

94-L Medium Purple/Amber/Opal/Crystal

for Outer Background, 9 Sq. Ft.

Tools and Materials

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Black Patina 1/2" Zinc U-Channel

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Kiln Corner

How to Adjust a Thermocouple

by Arnold Howard

Photography Courtesy
of Paragon Industries, L.P.

Though Arnold Howard works for Paragon Industries, L.P., the information here applies to all brands of glass kilns. Feel free to send questions for this column no matter what brand of kiln you own.

The thermocouple is the small rod that extends into the firing chamber of a digital kiln and is easy to find. It generates a faint electrical signal when exposed to heat. The controller interprets that signal from the thermocouple as a temperature.

Changing Signal Interpretation

You can't actually adjust the temperature reading of the thermocouple. You can, however, adjust the way your digital controller interprets the signal that it receives from the thermocouple. There are a couple of reasons why you might want to do that.

- You have replaced the thermocouple in your kiln, and the new one does not read exactly the same as the old one.
- Your kiln has a Type-K thermocouple that has drifted in temperature. A Type-K thermocouple can vary as much as 36°F/20°C over its life span. However, this is rarely an issue with glass firings, because the Type-K thermocouple lasts almost indefinitely at the comparatively low glass fusing temperatures.

Adjusting Readings in Thermocouple Offset

The thermocouple reading is adjusted in Thermocouple Offset. This is the term used by the two most common brands of controllers, Paragon's Orton glass kilns and the Bartlett ceramic kiln.

Orton's Sentry 2.0 12-Key Controller

1. From Idle, press the Options key until "TCOS" appears. Then press Enter.
2. Using the 1 and 2 keys, change the temperature setting. An *H* number will cause the kiln to fire hotter; while a *C* number will cause it to fire cooler. The higher the number, the greater the temperature change. Then press Enter. To return to Idle, press Stop.

Orton's Sentry Xpress 4.0 3-Key Controller

1. From Idle, press the down arrow key several times until "Strt" appears.
2. Press the up arrow key. "TCOS" will appear.
3. Press the arrow keys to change the controller temperature. A minus number will cause the kiln to fire cooler. Press the START key to return to the Strt display. To return to Idle, press START two more times. Instead of adjusting the Thermocouple Offset, you may prefer to change the temperatures in your firing schedules.



*Keep kiln shelves, dams, and molds
3/4" away from the thermocouple.*



As a rule of thumb, the thermocouple should extend into the firing chamber by four times its diameter. Bumping the thermocouple with a shelf and pushing it into the wall of the kiln will cause the kiln to get too hot.

Arnold Howard writes instruction manuals and advertisements for Paragon Industries, L.P. His hobbies are glass fusing and karate. He also enjoys studying history and watching classic movies. You can reach Arnold at ahoward@paragonweb.com with questions for future columns. Sign up for his kiln newsletter at www.paragonweb.com.

GPO

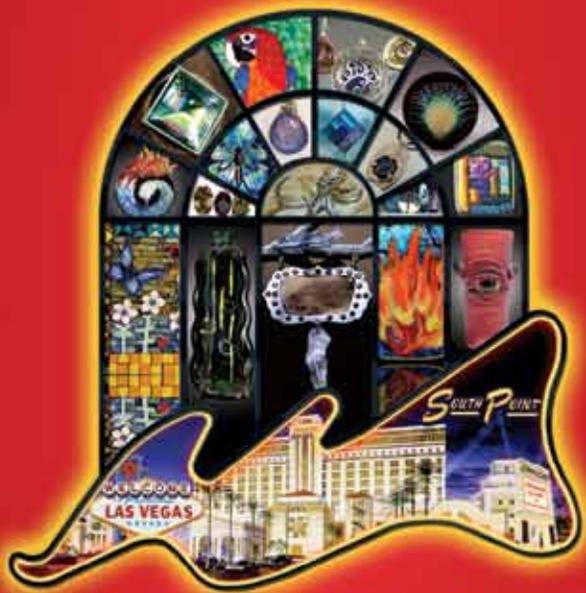
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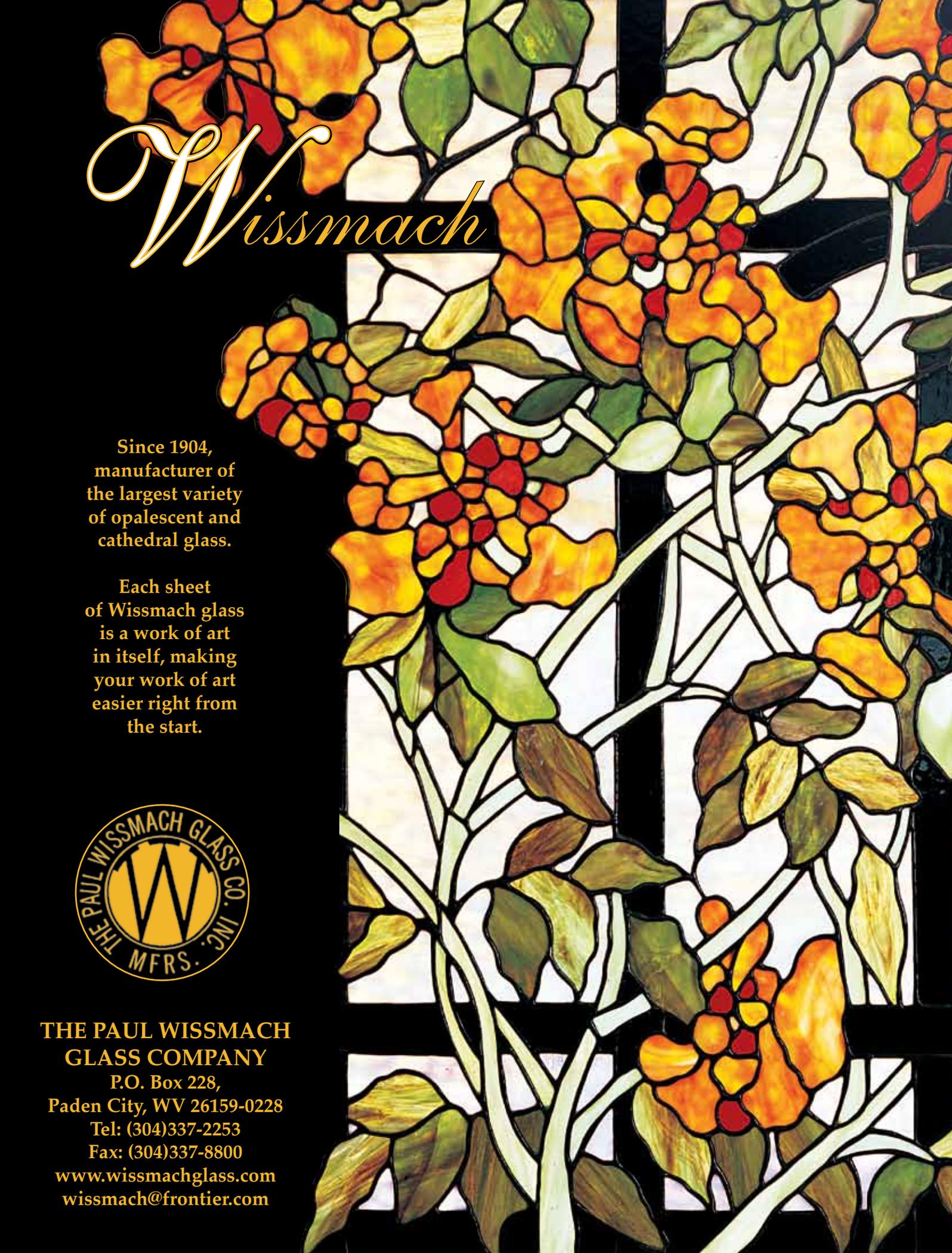
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