

# GLASS PATTERNS

— Q U A R T E R L Y —

Fall 2016

Volume 32 • No. 3

## Holiday Issue

Stained Glass

**Victorian Gourd Panel**

**Copper Foil Overlay**

**Halloween Tree**

Fused Glass

**Woven Glass**

**Metal Leafing**

**Stencil Design**

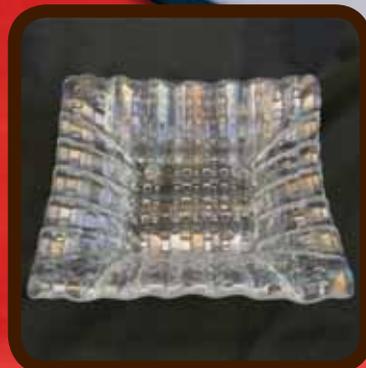
**Fused Spoons**

**Fall Centerpiece**

**Combing Technique**

Etching

**Embossed Bottles**



Volume 32 No. 3

\$6.00 U.S. \$7.50 Canada



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# The best of both worlds

*Lisa Vogt holds one of her kiln formed vessel sinks.*



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## From the Editor

### Life in the Pink

An artist loves color! I'm not going out on a limb by saying that. Chances are good that you entered the art glass world because you were mesmerized by the colors, textures, and interesting techniques you can do with this complex property.

Enter the actions of the last six months involving the temporary and even permanent closings of some of our beloved colored glass manufacturers. We all voiced our concern when it appeared that the lights might go dim in the world of color. I've been involved in this community for the last twenty years, and I know this is a resourceful bunch. If one avenue is shut off, as glass people we will find a new source, a replacement, even try a new skill so we can keep doing glass no matter what the color.

Once again the glass community rallied to support businesses in crisis. There was a clear glass challenge on blogs and forums for artists to share fused and stained glass projects done specifically in clear glass in order to show solidarity when the Bullseye Glass Co. in Portland, Oregon, experienced restrictions on the chemicals that produced certain colors. Simultaneously, we heard the announcement that the Spectrum Glass Company is closing its glassmaking facility in Woodinville, Washington. I just got word that Spectrum is hard at work to fill existing orders within their distributor pipeline with the last of their production and is in the process of finding another manufacturer to license their glass formulas.

We, as glassmakers, are brainstorming and problem-solving like never before in order to look at this journey "in the pink" or through rose-colored glasses. I like what artist and business owner, Stephanie O'Toole, said recently in a post in Fused Glass Fanatics after realizing that she was in a "manufacturing mode" relying on the predictability and price point of Spectrum Glass, "Now I'm looking at my glass inventory and forcing myself to do tutorials using Uroboros or Wissmach, and a funny thing is happening. I'm getting the thrill that I haven't had in a long time when I open my kiln. Maybe now I'm crafting instead of manufacturing? I do know that I'm thinking harder about it than I have in a little while."

It is not hard to see why *GPQ's* fall issue is one of my favorites, because we give you a gift-giving, table-scaping, tree-trimming, trick-or-treating cornucopia of ideas to pack your holidays with creative splendor. Many of the following projects will challenge your ideas about color. We have projects using multiple paint techniques and liquid frit as a way to amp up the hues. There are also projects highlighting the beauty of clear glass, both fused and leaded. Other tutorials offer glass alternatives by various manufacturers so you can obtain glass from substitute sources.

As with most journeys in life, the road is continually fluctuating. *Glass Patterns Quarterly* will be there to navigate change with you. It's optimistic to look at challenging situations in the industry through rose colored glasses or "in the pink." But as Architect William McDonough said, "Design is inherently optimistic. That is its power."

Happy Glassing,

*Delynn Ellis*

Delynn Ellis

Managing Editor

September Showers by *Chantal Paré*



#### Upcoming Submission Deadlines

**Winter 2016** *Wildlife, Winter, and Landscapes*

Editorial September 20, 2016

Ad Closing October 20, 2016

Ad Materials October 30, 2016

**Spring 2017** *Glass in the Garden - Glass Flowers, Planters, Birdbaths, and Garden Art*

Editorial December 1, 2016

Ad Closing January 20, 2017

Ad Materials January 30, 2017

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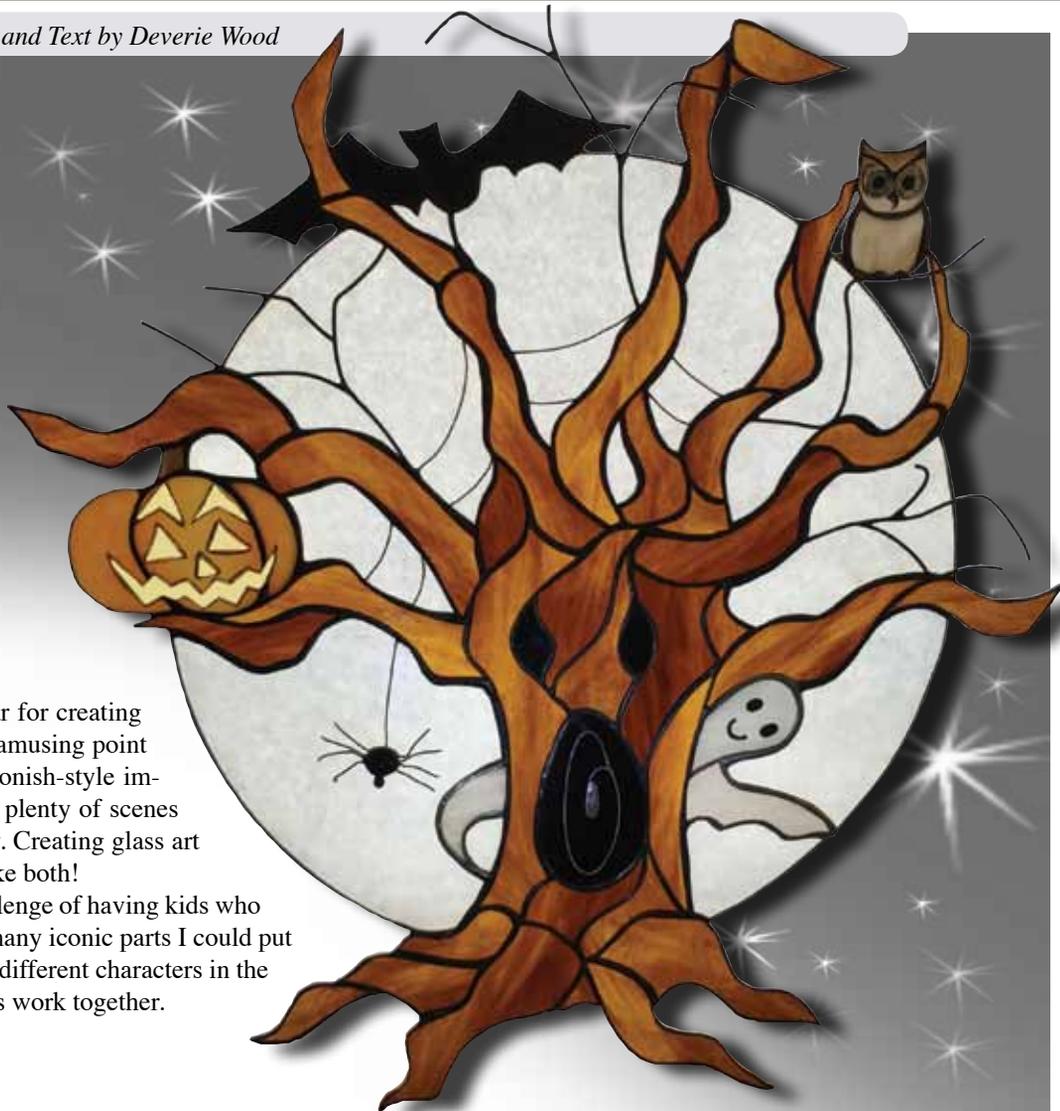
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For full details, tips and accessories, visit [HakkoStainedGlass.com](http://HakkoStainedGlass.com)



# Halloween Night

*Design, Fabrication, and Text by Deverie Wood*



Halloween is a versatile time of year for creating glass art. You can design from an amusing point of view that might include funny cartoonish-style images. On the other hand, there are also plenty of scenes created from a very scary point of view. Creating glass art for Halloween is versatile that way. I like both!

This design was inspired by the challenge of having kids who enjoy Halloween and wondering how many iconic parts I could put into one image. It is amusing to see the different characters in the tree. I have fun with how all of the parts work together.

## **Kokomo Opalescent Glass**

K144MS Brown for Tree, 1-1/2 Sq. Ft.

## **Bullseye Glass Co.**

Black for Bat, Tree Eyes, and Mouth, Scrap  
Rainbow Iridescent Clear for Moon, 1-1/2 Sq. Ft.

## **Wissmach Glass Co.**

17-LL White Opal/Red/Orange for Pumpkin, Scrap  
White Wispy for Ghost, Scrap  
WO-58 Medium Amber Wispy  
for Owl and Pumpkin Stem, Scrap  
49 Dark Amber for Owl Wings, Scrap

## **Tools and Materials**

Copper Foil 7/32" Black-Backed Copper Foil  
12- and 18-Gauge Pretinned Copper Wire Black Nugget  
Black Patina Patina Cleaner  
Cotton Swabs Airplane Model Paint  
Hanging Chain Light Box

1

*Cut and solder the project together but do not cut out the copper wire lines on the pattern.*



The copper wire lines will be soldered on top of the solder lines. This pattern is about details added after soldering the glass pieces together. The clear iridized glass needs to be wrapped with black-backed copper foil, because you will be able to see through the glass.

2

Create the wire branches, spider web, and spider body.



Cut the 12-gauge copper wire, coat it with flux, then solder the pretinned copper wire branches together. Now cut the 18-gauge pretinned copper wire for the spider web. You can buy the copper wire pretinned in the gauges you need.

For the spider's body, cover the black nugget with copper foil, firmly flattened, then coat the foil with solder. Make the spider's head by placing a drop of solder on the edge of the copper foil.

3

Attach the spider's legs.



Cut 4 long pieces of the 18-gauge pretinned copper wire and center them on the bottom of the nugget in preparation for adding the legs. When the legs are soldered onto the bottom, bend them to the shape of spider legs. Solder the spider string wire to the bottom of the spider.

4

Make the tree's throat separately and solder it to the tree.



I like to fill the little loop in the center with solder for an artistic effect. The end solders right into the seam of the tree.

For the loops used to hang the panel, cut a 1-1/2" length of the 12-gauge pretinned copper wire and bend it in half. Twist it at the bottom until there is a big enough loop at the top to hang a chain or wire through it. Solder the loop to the back side of the solder position indicated on the pattern for the loops. It offers more strength for the loops if they are soldered securely into a seam.

Solder the tree branches, spider web, string with the spider, and the mouth of the tree wire to the joints where the wire and solder lines connect together, as indicated on the pattern. The spider will cutely quiver if it is soldered to the tree just at the tip of the web string.

5

Apply black patina to the solder lines and pretinned wire.



Thoroughly clean all of the solder lines and attached wire with flux cleaner so it is ready to accept the patina. Apply the black patina to the whole project with a regular cotton swab, since you will use less patina using the swabs. However, you need to change to a clean tip dipped in the patina for every other seam to keep applying the patina with the darkest color.

Clean the panel with patina cleaner but do *not* use tap water. The minerals in tap water will contaminate the patina to a dull brown. There is no need to apply polish on top of the patina. Just wipe it with a soft cloth.

6

Paint on the final details.



Using a light box, trace the pumpkin, ghost, and owl faces onto the already soldered figures. Use airplane model paint to paint on the details of each face. Outlining with a thin black line makes the details stand out more. Let the paint dry completely before touching it. Now that the design is finished, I hope you have a fabulous, fun Halloween night!

GPO



In 1979, Deverie Wood took a beginner class in stained glass and has loved working in this medium ever since. Within a year she had begun to design pieces and accept commissions for custom creations. After being the proprietor of her own retail store and teacher of art glass techniques, she took her desire to inspire others even further by establishing Light in Glass Publishing.

Designing and selling her patterns has helped Deverie to organize them into five pattern books that are still selling today. With ever-changing times and styles, there is always the desire to bring new inspiration to new generations of artists. Visit [www.deveriewood.com](http://www.deveriewood.com) for more information on her pattern collections.

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# Fruit and Wine

*Design by Hiroyuki Kobayashi and Jeffrey Castaline, Text by Darlene Welch*



There are loads of creative stained glass patterns available from Aanraku Glass Studios. This 47" x 24" *Fruit and Wine* panel, a beautiful, realistic depiction of the bounty from the fall harvest, is just one of the 28 patterns that you will find in *Aanraku Eclectic II: From the Original Collection Volume 2*. These stunning designs include patterns shown in full-color and line drawings for the Golden Gate Bridge, a Maine lighthouse, rhododendrons, a grape cabinet door, and many more.

What better way to capture the time of year when a frosty feel appears in the air and we begin to gather to celebrate the bounty of the land and share Thanksgiving time with family and friends. The careful attention paid to the selection of colors and the directions of glass grains in this rendering add a realism and feeling of depth to this beautiful design. Visit [www.abasg.com](http://www.abasg.com) to find many more offerings from Aanraku.

**GPO**

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## Wissmach Glass Company

502-L Opal/Medium Gray/Brown for Tabletop, 3 Sq. Ft.

65-L Medium Brown/Blue/Light Opal for Background, 8 Sq. Ft.

### *Following Glass cut from Scrap*

WO-503 Opal/Dark Gray/Brown for Tabletop Shadows

44-L Burgundy/Crystal for Wine

65-D Medium Brown/Blue/Dense Opal for Wine Bottle

WO-238 Dark Purple/Dark Blue/Opal/Crystal Wisspy for Bottle Label

11-LLG Red/Amber for Strawberries

217-LL Medium Purple/Yellow Green/Opal/Crystal for Pineapple

61-L Green/Brown/Opal/Crystal for Pineapple Top

100-sp Dark Green/Opal for Apple Leaf and Strawberry Tops

WO-28 Orange/Opal for Red Apple

1-L Silver Yellow/Light Opal/Crystal for Yellow Apple

57-LL Medium Green/Opal/Crystal for Green Apple

WO-67 Dark Purple/Opal/Crystal for Grapes

57-L Medium Green/Opal/Crystal for Grapes

1-D Silver Yellow/Dense Opal/Crystal for Bananas

WO-17 White Opal/Red/Orange for Peaches

146-L Yellow Green/Opal/Crystal for Limes

155-LL Dark Purple/Green/Light Opal/Crystal for Background and Stems

223-LL Light Amber/Dark Brown Streaky for Basket

Black for Basket Interior

### **Tools and Materials**

7/32" Copper Foil Flux Solder

Black Patina 1/2" U-Channel Zinc

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## Necklaces



AANP-01  
AANP-02  
AANP-13



## Bracelets



AANP-08  
AANP-09

## Ring



AANP-10



AANP-14

## Pendant (without chain)



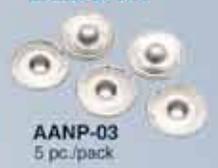
AANP-11

## Earrings



AANP-12

## Extra Disks

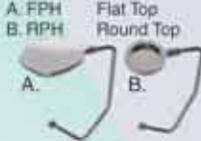


AANP-03  
5 pc./pack

## WINE BOTTLE STOPPERS PURSE HANGERS NEW! EARRING HOOPS



ITEM# **NICKEL PLATED**  
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



A. FPH Flat Top  
B. RPH Round Top

## KEY HOLDERS



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



AANP-05  
24 pc./pack

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- GB34R100 3/4" Regular 100/120
- GB34M170 3/4" Medium 170
- GB34F220 3/4" Fine 220
- GB34UF600 3/4" Ultra Fine 600

- GB14R 1/4" Regular 100/120
- GB18R 1/8" Regular 100/120
- GB38R 3/8" Regular 100/120
- GBJB Jewelry Bits
- GBRB Ripple Bits
- DB18 1/8" Core Bits



## TEA SERVER



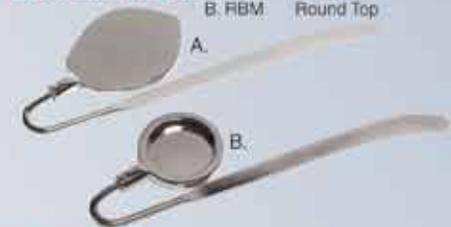
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TTT1 Extension Kit



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SQBM 7.5" Sq., Glass Size 6"  
SQBS 5 3/4" Sq., Glass Size 3 3/4"

## BOOKMARKS



A. FBM Flat Top  
B. RBM Round Top

## AANRAKU® GENUINE JEWELRY BAILS

### Leaf Bails



ITEM# **NICKEL PLATED**  
NJBS Large  
NJBL Small  
ITEM# **SILVER PLATED**  
SLBL Large  
SJBM Medium  
SJBS Small

### Heart Bails



ITEM# **GOLD PLATED**  
GJBL Large  
GJBM Medium  
GJBS Small  
ITEM# **.925 SILVER**  
925L Large  
925M Medium  
925S Small

### Earring Bails



ITEM# **SILVER PLATED**  
SHBL Large  
SHBM Medium  
SHBS Small  
ITEM# **GOLD PLATED**  
GHBL Large  
GHBM Medium  
GHBS Small

## FRIT MAKER

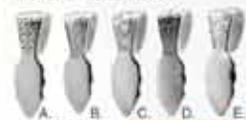


FM1

## FRIT SIFTERS



### Pattern Bails



ITEM# **SILVER PLATED**  
A. SPBL-6 Hexagon  
B. SPBL-H Hashmark  
C. SPBL-L Leaves  
D. SPBL-T Tortoise  
E. SPBL-W Waves  
SPBL-A Assorted (5 in 1)

### New Design Bails



ITEM# **SILVER PLATED**  
A. SFBS Fish  
B. SCBS Celtic  
C. SPBS Paw

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# September Showers

*Design, Fabrication, and Text by Chantal Paré*



*“As naturally as the oak bears an acorn and the vine a gourd, man bears a poem, either spoken or done.” – Henry David Thoreau*

September hurricanes come to die here in the Northeast, carrying with them gray skies and unrelenting rain, signaling the beginning of the school year and the fall harvest. This botanical Victorian revival panel is framed in Clear Rainwater glass, speaking of this weather pattern. It features ornamental gourds called Bicolor Pear, popular for their striking yellow necks and contrasting dark green bottom halves, crossed with white vertical stripes.

The leaves are represented in restrained shades of green and brown to evoke autumn, and the flower and fruit details are painted. They can be adapted as foil accents if you do not have a kiln. Note that the Seedy glass pieces may be hard to recognize from the photograph. They have been identified with the letter *S* in the pattern.

## **Uroboros Glass Studio**

65-14 Dark Brown/Light Brown/Emerald Green, 1 Sq. Ft.

65-785 Seacrest Opal/Antique White Opal/Green/Brown, 1/2 Sq. Ft.

## **Spectrum Glass Company**

100 RW Clear Rainwater\* (Wissmach Dew Drop-01), 3 Sq. Ft.

100N Seedy Clear Satin Seedy\* (Wissmach Seedy-01), 1-1/2 Sq. Ft.

100C Clear Cord\* (Wissmach Stream X-01), 1 Sq. Ft.

## **Wissmach Glass Co.**

51-LL Very Translucent White Cast Opal

## **Additional Glass**

3 mm Clear Float Glass, 2 Sq. Ft.

35 mm Round Glass Cabochons, 6

## **Reusche & Co.**

1059 Stencil Black

R1383 Orange #2

7870 Dark Green

RD25822 Chartreuse

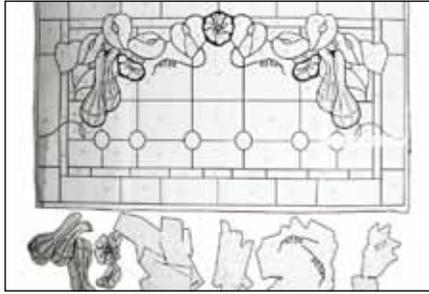
*1 teaspoon of each color*

*\*Starred choices refer to the Spectrum glass shown in this tutorial. Due to the closing of Spectrum, a similar type of glass is listed in parentheses.*

**Tools and Materials**

- Gum Arabic 1/2" Zinc U-Came (3 pieces)
- 3/16" H Flat or Round Lead Came
- Window Putty 60/40 Solder
- Soldering Flux Whiting (Calcium Carbonate)
- Horseshoe Nails Masking or Electrical Tape
- Liner Paintbrush Hog Bristle Brush
- Badger Brush Kiln Towels
- Light Box Came Miter Saw Gloves
- Burnishing Brush

1



Print two copies of the pattern.

One will be used to assemble the window. The other one will be cut out to use as a template for the individual glass pieces.

2



Trace the pattern onto the glass.

3



Score the glass just inside the marked lines and break until all the glass pieces are cut.

Clean the gourd and blossom pieces cut from the Wissmach 51-LL Translucent White Cast Opal with whiting and a moistened rag or glass cooktop cleaner.

4



Using a spatula, mix 1 teaspoon of the silver stain with water on a piece of scrap float glass until it forms a creamy slurry.

5



Spread the silver stain with a brush over the gourds and create a stipple with a badger brush, delicately daubing the paint a few times.

6



Remove any areas of unwanted silver stain with a blunted hog bristle brush.

7



Carefully place the glass in the kiln on primed shelves.

I used the firing schedule below for this run and all others. You may need to adjust the schedule to fit your own particular kiln.

**Firing Schedule**

- Segment 1: Ramp 550°F/hr to 900°F and no hold.
- Segment 2: Ramp 9999 (AFAP\*) to 1050°F and hold 10 min.
- Segment 3: Ramp 50°F/hr to 986°F and no hold.
- Segment 4: Ramp 9999 (AFAP\*) to 950°F and no hold.
- \*as fast as possible

After the kiln finishes the program, let it cool to near room temperature before opening the kiln. Wash off the dried slurry that covers the silver stained areas with running water.

8



Using a spatula, mix 1 teaspoon of Dark Green opaque paint sprinkled with a tiny amount of gum arabic and some water until you reach the viscosity of heavy cream.

Spread only over the areas that need to be painted and stipple with a badger brush. Let dry and lift away some of the paint with a blunted bristle brush to highlight the gourds' white stripes and to create shadows in the flower petals.

9

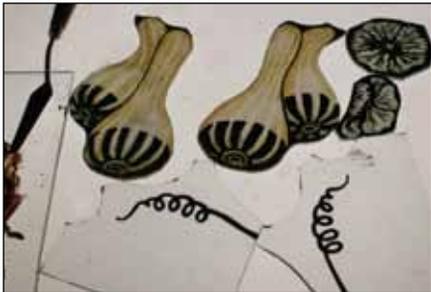
*Paint the black areas of the design.*



Mix 1 teaspoon of Stencil Black with a sprinkle of gum arabic until creamy. Paint the black areas on the flowers, gourds, and the tendrils in the center of the project. Fire the Green Opaque and the Stencil Black simultaneously.

10

*Add additional dimension to the gourds and flowers with Chartreuse enamel.*



Mix 1 teaspoon of chartreuse enamel with a sprinkle of gum arabic until creamy. Paint over the green areas of the gourds and add some shading to the flowers, then fire in the kiln.

11

*Build the panel.*



Prepare a 2-sided jig to contain the project as you lead it, using a carpenter's square to ensure perfect corner angles. With a miter saw, cut out a frame from the 3/4" zinc U-came. Cut and place the glass pieces, cabochons, and lead segments, securing their placement with horseshoe nails. Gently tap the glass into place using a soft mallet, working your way from top to bottom and from left to right.

12

*Solder the panel, front and back.*



Place electrical or masking tape solder guides on all corner joints on the zinc came and solder the corners. Solder the lead came joints on one side of the project. Turn the project over and solder the other side, taking care to lift the project with some towels, since the glass cabochons that run across the bottom third of the design are significantly thicker than the rest of the glass.

13

*Squeeze putty under the lead came using your gloved fingers for curves and using a putty knife for straight lines.*



Lift one side of the panel with towels to accommodate the thicker cabochons.

14

*Clean the window with whiting.*



Throw a fistful of whiting onto the puttied window and vigorously brush it with a burnishing brush in a circular motion along and against the lead lines until the zinc shines and the lead turns dark gray. Wash, scrape off any excess putty, and clean again.

*NOTE:* Do not install hooks directly onto the zinc frame of this large horizontal project. Instead, set it in a wood frame and insert the hooks into the frame for display.

**GPO**

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





#### 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

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#### 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.

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#### 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

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#### 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.

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# Puss in Boots, the Dapper Cat

*Design, Fabrication, and Text by Robin Anderson*

The story of Puss in Boots is one of the best known and beloved of all the Mother Goose Tales, written in 1697 by Charles Perrault. Puss was a remarkable cat, ingenious and conniving, and managed to manipulate events and people to enable his penniless owner to marry the king's daughter.

This particular image of a rakish Puss, found in a scrap album dated around 1890, comes from a collection of Victorian ephemera collected by my sister, Moira Allen. His costume, complete with plumed hat, dashing sword, and ruffled collar, plus his debonair stance, certainly fits his confident attitude.

For any cat lover or lover of Victorian popular art, this pattern is just perfect! For many more patterns adapted from the collection, see my latest pattern book *Whimsical Critters, A Victorian-Inspired Menagerie*.



## Spectrum

*See sidebar for alternative glass selections*

151RR Red Rough-Rolled for Border Area, 12" x 18"

*Following Glass cut from Scrap*

3671 Yellow/White Streaky for Plumes

3951 Pink/White for Plumes

3872 Dark Gray/Medium Gray for Pistol, Saber, and Hat

3276 Dark Green for Jacket Trim

3571 Red/Oranges for Jacket

20161 Ivory for Collar

1009 Black for Belt

3156 Tans for Boots

121 Yellow Green Transparent for Eyes

## Bullseye Glass Co.

3203-30 Woodland Brown for Body, Scrap

## Additional Glass

GC100 Clear Glue Chip for Oval, 12" x 14"

## Tools and Materials

Quarter Round Pushpins Sharpie®  
Square Burnishing Tool Glass Cutter  
Morton Layout System (optional)  
Breaking Pliers Grozing Pliers X-Acto®  
7/32" and 3/16" Black-Backed Copper Foil  
Copper Adhesive-Backed Sheet (optional)  
Black Patina 3/8" Zinc U-Channel Came  
60/40 Solder Soldering Iron Gel Flux  
Kwik-Clean™ Glass Cleaner Liva™ Polish  
Handi-Hangers™ Hanging Chain  
Tiny Brush Hobby Paint

# 1

*Make two copies of the pattern and set up a jig for assembling the panel.*



Lay out one pattern copy on your work space and label each piece. Set up a carefully measured jig around the outside edges of the pattern to help prevent “creep” during panel assembly. Without the jig, a panel always seems to get slightly larger as is it built. I use the Morton Layout System, but you can make a very useful jig with just pieces of quarter round with holes drilled through them for your pushpins. Use a carpenter’s square to get the corners perfectly square.

# 2

*Cut the second pattern into pieces, select the glass colors and types, and trace the pattern onto the glass.*



Take the second copy of the pattern and label each piece with the identical numbers. Before you cut it into individual pieces, mark them with an arrow to indicate which way you want the colors and or textures to flow in the final piece.

You will be using these cut up pattern pieces to trace the outline of each piece, so it’s handy to have the arrows right there on the pieces. If you would like the pieces to be more durable, consider laminating them or covering the whole second pattern with clear contact paper on both sides before you cut it apart. Be sure to hang on to any pattern pieces, like the paws and whiskers, that will have overlays. You will need them later.

Pay close attention to the direction and flow of the colors in the glass as you place the pattern pieces. You can create wonderful effects in the final panel by using these features. Especially when working with animal images, it’s particularly important to have the direction of the glass matching the lay of the hair in their coats. It may be very useful to have a light box handy so you can test direction, degree of opacity, and other qualities of the glass pieces in both reflected and transmitted light. Make the glass work for you. Taking the time to lay the pieces out on the glass to get the best effect is definitely worth it.

# 3



*Cut the glass pieces.*



Cut out the glass pieces and use a Sharpie to label each with its number. A few cuts are best done on a glass saw if you have one. If not, however, they can be done quite successfully with careful grinding. Grind, fit, and assemble all the pieces for the panel. (Wow, that is faster said than done!) Make sure that when you are finished with a piece, it is clean, dry, and has no grinder dust residue on its edges.

For the most attractive foil lines in the finished panel, try to cut and grind the pieces so that they meet evenly and are flush with surrounding pieces. Ideally, there should just be enough wiggle room that you can pick up any given piece without it binding anywhere. Don’t worry yet about the final “fine-tuning” grinding, though. You will do that when you are foiling.

# 4

*Foil the panel.*



If you plan to patina the solder lines, use the appropriately colored foil. For example, if you intend to make the solder lines black, use black-backed copper foil tape. Depending on the thickness of the glass, use 3/16" and/or 7/32" copper foil to foil each piece. You may want to have both sizes on hand, since some glass may be thicker or thinner than others. Be sure that the piece you are foiling is dry and free of dust residue on the edges, or the foil won’t stick.

This step is where a panel is most apt to enlarge itself, so stay inside that jig! If a piece seems just a bit too large to fit comfortably, grind the edges until it does. You would not think that such thin foil tape would make a difference but it does, so expect to have to make some small adjustments. Foil one piece at a time and fit it back in the panel, because its slightly new dimensions will affect how the surrounding pieces fit.

Many artists begin foiling at one corner and work toward the opposite. I did it a bit differently. I first foiled all the red border and glue chip background glass to be sure to get those lines to match perfectly. Then I foiled and adjusted all the pieces of Mr. Puss himself. Do any additional minor grinding to ensure that all of the pieces fit as snugly as possible. Remember, “snug” but not “tight.”

*Note:* When you foil the outermost border pieces, be sure to leave the outside edges without foil. They will be sliding inside the zinc came, and if there is foil on that edge, it will show. Plus, it’s a waste of foil.

5



*Create the overlays.*

Overlays are a wonderful way to avoid having to grind impossibly small pieces, such as his face with those whiskers, or to add detail, such as his paws and belt buckle. Leave all the pieces in place. Clean the glass pieces to be overlaid very thoroughly by wiping with a damp cloth, then wiping with alcohol on a towel and letting it air dry. Don't get fingerprints on the overlay area, since there is enough oil on your fingers to keep the tape from adhering completely.

I recommend using the adhesive-backed copper sheet for overlays. It is a bit thicker and sturdier, and the adhesive seems stronger than that on the tape. If you don't have the sheet, however, strips of the foil tape work just fine too. If you're using the foil tape, take a piece of the tape long enough to run the entire length of the overlay, place it in position at one side of the overlay, and tack it down. If you need extra tape to cover the overlay area, overlap each piece slightly with the next one. If you're using sheet, cut a piece large enough to cover the entire overlay area—for example, an entire paw.

Regardless of whether you use sheet or tape, burnishing it to the glass very well is the key to a successful overlay. An old pencil stub with the lead point removed or a cuticle stick make wonderful tools for this work, in addition to your burnisher or lathekin. Be especially sure that the tips of an overlay not connecting to a lead line are well burnished, since they are the most apt to lift off during soldering.

Once well burnished, take the paper pattern piece and tape it over the foil. Use a pushpin or other pointed object to outline the overlay lines on the paper pattern. Remember that you have to outline both sides of a line to create the overlay.

Finally, remove the pattern and use a sharp X-Acto™ knife to carefully cut away the excess foil. Cut the line first, then use the knife point to push the excess away from the overlay line. Pull that excess off carefully. Burnish each overlay when it is all cut out. Take your time. The attention you pay to the overlays is repaid in the final panel.

6



*Solder the foil lines and overlay.*

When all of the pieces are foiled and fitted into the panel and the overlays are done, flux all the foil lines, being especially careful of those overlays. Lay down the flat (tack) solder on the panel front, carefully pick up the panel, turn it over, and apply the flat solder to the back. Then lay down the bead solder. Turn the panel over again and add the bead solder to the front.

Sometimes solder just doesn't want to lay down. Usually that's because I forgot to flux the spot. For those really stubborn places, gently clean with very fine steel wool, re-flux, and try again. It usually grabs on the second try.

Remember that your soldering iron is hot enough to break glass if it's used in the same spot for too long, especially if the piece is a small one. If one line is giving you trouble, move on to another place and give the glass time to cool off. Having to remove and replace a broken piece at this point is not a fun job!

Take particular care when soldering the overlays. Apply the flux gently, being careful to not brush "against the grain" and accidentally pull it up. Make sure the iron tip is clean, then take a drop of solder on the iron and just lightly touch and draw it down the overlay. The solder will run quickly over the overlay. You need to work quickly, or the iron's heat will lift up the overlay. If this does happen, and it does, you will need to start over.

When the entire panel is soldered, add the zinc came frame pieces and solder all junctions of the came plus wherever the came and foil intersect, front and back. Solder a Handi-Hanger into the came at both top corners. You can then attach a length of chain for hanging the panel. Clean the entire panel thoroughly. Kwik-Clean does a great job.

7



*Apply patina if desired.*

To patina or not? It's totally a matter of personal preference. Some folks like the shiny bright lines, and others prefer the dark. Leaving the lines shiny emphasizes the lines themselves, while using patina focusses the eye on the glass. If you decide to patina, prepare the lines carefully. Make absolutely sure that they are clean. You can gently use very fine steel wool or clean with a solution such as Kwik-Clean.

Be sure you have eye protection! Patina is acid and must not get in your eyes. Gloves are a good idea, too. Apply the patina carefully but thoroughly using a rag or an old toothbrush. Be very careful to not scrub patina on the overlays. Apply it gently, perhaps using a hobby paint brush. If the patina doesn't seem to take somewhere, gently clean the spot with the fine steel wool and try again.

Don't worry if the patina stains the zinc. It will come off in the final cleaning. If you want the zinc frame to match the dark solder lines, you will need patina for zinc, since the patina for lead and solder won't work.

8

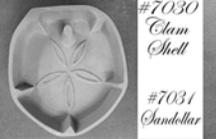


*Add the final details.*

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Frederick, MD

In the interest of not having those insanely tiny pieces, I chose to do a bit of detail painting. Look at his belt buckle and his eyes. Those were painted inside the overlay lines. Use a very tiny brush, such as an eyeliner brush, which work great. You can also take a small, good quality paint brush and trim away bristles with scissors until you only have a dozen or so hairs.

I use the hobby paints you can get at a craft store. Wet your brush and take paint on it, dabbing into the area you want to fill. Let dry. Then put a light behind the spot you are working on so that you will be able to easily see where gaps need filling. Let the paint dry completely.

Once all of the soldering is done and the patina is applied, thoroughly clean both sides of the panel. Allow it to dry completely. Again, watch out for those overlays!

Check for any burrs or sharp points in the solder. If you find some, apply a bit of flux and touch up with the iron. Then clean that spot thoroughly and reapply the patina as needed.

Use a good quality glass polish such as Liva or Kem-o-Pro to polish the panel. Apply, allow it to dry, then buff and wipe, using several pieces of clean paper towel or soft rags. For detail work, use a pencil point covered with paper towel to get into those spots. Take extra care not to damage the overlays. Wipe, don't rub them. And there he is—dapper, with attitude!

### About Scrap and Other Thoughts . . .

Nowadays we have all become very conscious of not wasting glass, even the little pieces. Save your scrap and sort it by color. I use the 3-drawer plastic cubes from Walmart. Make your new mantra, "I will not cut into a larger piece of glass until I have looked in the scrap drawers first." When I pulled glass for Mr. Puss, *everything* came from scrap except for the red border and the glue chip. So hang on to that scrap!

What about the small pieces, say under 2 inches? Do you know somebody who does mosaics? Give it to them. They will be delighted, and nothing has been wasted. Obviously, if you do mosaics yourself, all those little pieces will be perfect.

Now a word about the glass I used and how you can adjust the colors if you don't have this or that particular color. Almost all of the glass I used here is Spectrum, simply because I have a lot of that. But it doesn't mean you have to use Spectrum, even if you want the same colors used here.

In the following chart there are some suggestions for replacement glass. But remember, *you* are the one selecting your glass. If at all possible, please buy from your closest glass shop. These folks are extremely knowledgeable and really need our business right now! Aside from that, browsing through the available glass to find just the right piece is always preferable to ordering online. That way, you can compare a piece of glass lying flat on a table versus one that is held up to the light. It's amazing how much difference there can be!

This chart comes as close as possible for replacements from other glass companies. I chose them based on a decision to do the red and clear in transparent glass, and Mr. Puss himself in semiopaques and even a couple of solid opals. You may well have other plans, but know that there *are* alternatives that are very close to most of the Spectrum glasses.

### Alternative Glass Choices

152RR for Border Areas – WI 18G / EM 4912 / KOG 41 SB / KOG 50

3671 for Plumes – AR 1724 / AR 081 / WI 1-D / BE 2020-30  
3951 for Plumes – WI 266-L / WI 7-D / BE 2302-30 / BE 2305 F  
3872 for Hat, Gun, and Saber – KOG 789 D / AR 10 SO / BE 0136-30 / BE 0236-30

3276 for Jacket Trim – KOG 657 / KOG 657 D / WI 320 DR / BE 0145-30

3571 for Jacket – BE 0225-30 / WI WO-028 / WI 208 / WI 699-D

20161 for Collar – AR 1800 V / WI 569-D / BE 0137-30

1009 for Belt – WI BLACK / AR 9501 / BE 0100-30

3156 for Boots – WI 58-D / WI 706-LL / KOG 11 D

121 for Eyes – KOG 18 SPLN / BE 1426-30 / WI 161 DR

### Company Key

AR	Armstrong
BE	Bullseye
EM	English Muffle
KOG	Kokomo
WI	Wissmach

There are many other choices! Talk to your friendly glass shop owner, who can help you find exactly what you want!

**GPO**



*Robin Anderson got hooked on stained glass back in the early 1990s and opened her Sunny Brook Studio in 2000. Since then, she has become best known for her highly realistic pet designs, most of them done as memorial pieces for beloved companions who have passed. In 2013, she also turned her attention to making her designs available to other artists through her pattern books, Best in Show, Best in Show – Puppy Class, It's a Cat's Life, and the latest, Whimsical Critters, all available from her Web page, [www.sunnybrookstudio.com](http://www.sunnybrookstudio.com), Amazon, or your local stained glass retailer.*

*Robin now devotes her full time to her pet portraits, stained and fused glass trophies for dog shows, and her own fused glass art. She loves to hear from other glass lovers and can be reached at [rlandersn@suddenlink.net](mailto:rlandersn@suddenlink.net) or on her Sunny Brook Studio Facebook page.*

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# Gilded Partridge in a Pear Tree

*Design, Fabrication, and Text by Margot Clark*

## **96 COE Glass**

10" Square of Clear Glass

### **Unique Glass Colors**

#### *NT Colors*

1958 Turquoise

1963 Tulip Yellow

1965 Amber

1966 Warm Brown

1968 Tan

1969 Gloss Black

1977 Jade

1995 Apple Green

1998 Golden Orange

11002 Tomato

11003 Brite Pink

11008 Burgundy

11016 Vanilla

11022 Sea Green

#### **ACCENTS**

701 Brass

702 Copper

### **Additional UGC Materials**

Layering Mix 10/0 Script Liner

Margot's Miracle Brush

Decorator Bottle with Metal Tip

UGC Glass Separator FREE

Sunrise Simple Leaf

11 Empty 1 oz. Jars with Lids

### **Tools and Materials**

Foam Plates Stylus

Old Toothbrush Soft White Cloth

Mona Lisa Extra Thick Leafing Adhesive

Mona Lisa Metal Leaf Sealer

Triangle Makeup Sponge



This is a very fun design for the holidays. It looks intense, but it's really only a bird, pears, leaves, branches, and berries, just a lot of them! I chose to create this very traditional theme with a bit of whimsy and soft colors, enhanced with the addition of the metal leafing that is added after firing. It's very easy to play with the color choices to suit your own tastes or decorating theme.

## **Preparing the Glass and Colors**

Clean the glass thoroughly before beginning to add the colors. Mix Warm Brown with the Layering Mix on a 2:1 ratio. This needs to be quite thick to create a nice outline for the design. If needed, adjust by adding either more color or more Layering Mix for the correct consistency. Place the color in the Decorator Bottle with Metal Tip.

Mix Turquoise with Vanilla on a 1:3 ratio to create a new color. Now mix the new Turquoise color, Tan, Vanilla, and Tomato, all separately, with Layering Mix in a 1:1 ratio. You will need a good bit of Vanilla and the Turquoise color mix for base coating the partridge and the leaves. The color can be adjusted as needed for different areas.

## **Outlining the Design**

1

*Outline the design on the clear glass.*



Lay the glass over the pattern and use the Warm Brown mix in the Decorator Bottle to outline the whole design *except for the patterns on the bird, the bird's eye, and the vein lines in the leaves*. Start in the middle of the panel and work out so as not to drag through wet color.

Wipe the end of the metal tip often so as not to get a clog from picking up dried color. Keep the tip open for a while in case you miss a line. Do this by soaking a small piece of paper towel with water and inserting it into the cap. When the cap is placed on the metal tip—it will just sit there for now—the tip will be in contact with the wet towel and the color will not dry out in the tip. As long as the paper towel stays wet, the color will be fine in the bottle.

When you are completely done with the outlines, pour the Warm Brown back into the jar, wash the Decorator Bottle, and clean the tip. Because you have to wait 24 hours to add color and another 24 hours to allow all the base coat colors to dry, it would be a good idea to remove the tip and clean it out, placing the cap on the Decorator Bottle. Then add the tip back on when it is time to add the final details.

Allow the paint to dry for 24 hours before adding wet color next to the Warm Brown outline. By mixing the colors at this time, it gives them a chance to sit for 24 hours also, and they have a chance to settle a bit.

## Adding the Base Coat Colors

2

*Apply the base coat to the partridge, pears, and leaves.*



Using the 10/0 script liner, begin with the partridge and the Vanilla paint, skipping around the design so you are not placing wet color next to wet color. Next, add Vanilla to the pears—again, not wet next to wet. Allow the paint to dry long enough for the outer edges of the color to start to dry before adding more color. *Note:* Do not let Layering Mix dry in the brush. It will harden the bristles as well as the color!

3

*Add the Turquoise mix to any leaves that are not next to wet color.*



Refer to the photo for placement of the leaves so you do not add color into any of the negative space. Then add more Vanilla to the partridge, finish the pears, add more color to the leaves, and begin to add Tan to all the branches. Refer to the photo for placement, since there are a *lot* of lines!

4

*Finish the base coat for the partridge, branches, and leaves, then add Tomato to all of the berries.*



Allow the colors to dry 24 hours or at least overnight before adding wet color over these base colors.

## Adding the Glazes

It's time to add glazes of color to the base coated areas. The following is how most of the color is added to the base coated design.

5

*Mix the colors with the Layering Mix for the various glazes.*



Using the Margot's Miracle Brush (MMB) that has been rinsed in water, pull it through the edge of the puddle of Layering Mix, fully loading the brush, then go to the puddle of color, pull the color out, and blend it with the Layering Mix in the brush. This keeps the colors thinned for glazing techniques.

I mix my color in a jar for storage and put just a bit out onto the palette along with a puddle of Layering Mix. By having some paint mixed in the jar, I can always add more to my palette without having to stop and mix a puddle of color. Not good when you are trying to blend wet-in-wet!

Note in the photo how pale the colors look where the brush that is loaded with Layering Mix is pulled through the color to load the brush. Glazes are *thin* layers of color!

I have a mantra you should repeat over and over—"Too thin, do it again. Too dark, too bad!" If the color is too light, you can always add another layer of color. If the color goes on too dark, however, you will have to adjust your whole painting to that level of dark. Easier to go light!

Begin in the darkest area, and as you fade color out, quickly rinse the brush in water, pinch out the water, then load in just Layering Mix and use that to help with the fading. The Layering Mix keeps all of the layers nice and hard, so lots of layers can be added.

When you are applying the colors, do not go over the Warm Brown lines on purpose, but do not worry if the color does get on them as you paint. This just softens the whole design. If you want the lines back, you can do so after all the painting is completed.

6

Apply the colors to the various areas of the bird's body.



Beginning near the beak, add Brite Pink and fade it off as you get near the top of the head. Use Turquoise beginning at the shoulder above the wing and fade it to the top of the head as well.

Coat the whole tummy area with a glaze of Brite Pink, making sure you apply the color in the growth pattern of the feathers. Add a glaze of Turquoise to the wing area and tail feathers and a glaze of Golden Orange to all of the pears.

7

Continue adding color to the design.



When adding more color to the design, you will begin in the same area as the previous step, but you will pick up a bit more intense color (not as much Layering Mix). The new layer does not get pulled out as far as the previous layer unless directed otherwise.

Apply Brite Pink to the head, one third of the tummy area, and a bit at the top of the wing. Next use Tulip Yellow for the middle section of the wing, fading the color out on both edges, as well as on a couple of the tail feathers. Let the colors dry until they look chalky.

Add Turquoise to the head and the two sections of the wing, allowing the color to fade into the pink and into the yellow areas. Apply the Turquoise as a solid color to the oval tips of the tail feathers and as a glaze on the rest of the tail feathers that are not yellow.

Use Golden Orange on the beak and tuck some into the deep V shape at the bottom of the throat. Then add Jade to the decoration on top of the head, to the Turquoise area at the top of the wing, and at the bottom tip of the wing. Fill in the feet with Warm Brown.

8

Mix Brite Pink and Burgundy 2:1 and use this color a bit darker (less Layering Mix) to deepen the head near the beak and the rest of the tummy.



Fade into the Brite Pink from the previous step and a bit at the top of the wing. Next apply a bit more Jade to the shoulder and wing tip as well as on the areas under the tips of the feathers, applying the color a bit heavier on the Turquoise feathers.

9

Mix more Burgundy into the Brite Pink/Burgundy mix to darken and apply the darker color to the bottom of the tummy and back to the tail feathers.



Also apply just a touch to the top of the wing. The bird is done for now. Details will be added after all of the painting is completed.

10

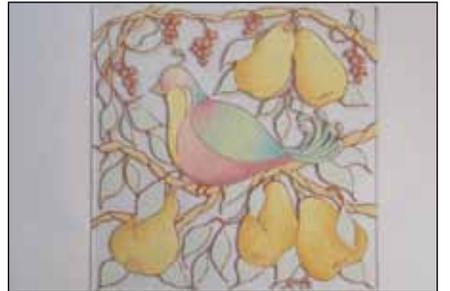
Add Amber to the left sides and bottoms of all the pears, under any leaves that are on top of the pears, and wherever one pear is over another.



Also add just a touch of Amber to the beak next to the head and in the deep V of the throat.

11

Create dimension on the pears by shading with a mixture of Amber and Warm Brown.

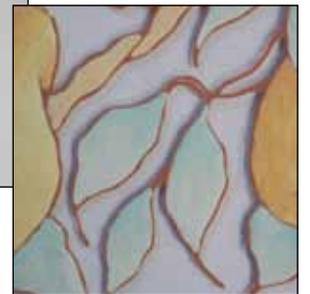


Mix Amber and Warm Brown 2:1. Apply in the same areas as the Amber but take up less space with this color than with the Amber. The pears now have some nice dimension. We will leave them for now and go on to the leaves.

12

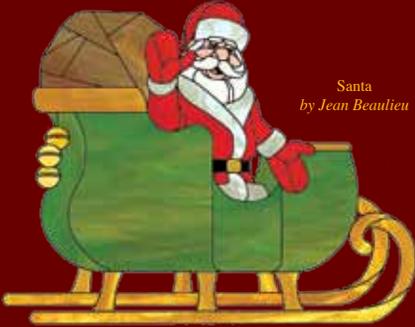


Using Turquoise, begin at the stem end of each of the leaves, apply color 1/3 of the way onto the leaf, and fade off using Layering Mix.



Apply color to the leaves under the pears and the bird and wherever one leaf overlaps another leaf. Let dry until the color looks chalky.

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13

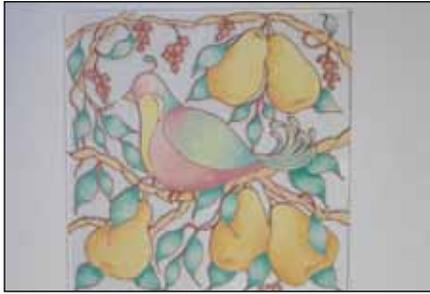
Repeat for the tip of each of the leaves, except the two at the upper right-hand corner.

That is where the light source is coming from, so those need to be a bit lighter than the rest of the leaves. There will be variations depending on how large or small the leaf is, and this is just fine. They do not all have to look the same. We just want to add value to each of the leaves.



14

Using Sea Green, repeat the above step, but do not come out as far.



Add a bit of color on the left side of the leaves at the bottom left, since those are in the darkest part of the design. One change, however—instead of cleaning the brush in water and then picking up Layering Mix to fade out, wipe the brush off on a paper towel and pick up Layering Mix to fade. This will give some streaks of color in the leaves.

15

Tuck Warm Brown into each of the V shapes on the branches, coming out about one third of the way onto each section.



Fade the color off toward the middle of the section. I find it easiest to go in one direction, turn my work, and repeat for the other direction. Again, just wipe the brush off instead of cleaning it with water.

16

Add just a bit of Burgundy to the bottom left of each berry, no more than one quarter of the berry, fading off toward the middle.



Let the color dry. Mix Brite Pink and Vanilla 1:1 for a color that is a little lighter than Brite Pink. Using a stylus, place a dot of color at the upper right of each berry for the highlight.

17

Use additional color to create some variety among the leaves and add the bird's eye.



Time to add some other colors to the leaves so they are not all the same. Refer to the photo or place the color wherever you would like to have color.

Add more Layering Mix to a small puddle of Apple Green to create a thin color. Apply this to some of the leaves at the bottom, bottom left, and left side of the design, coating the whole leaf with color. Repeat for the leaves at the top right using Golden Orange.

Add the bird's eye with Gloss Black and the 10/0 script liner. Let dry thoroughly and add a dot of Vanilla for the highlight. Go over the feet with a glaze of Gloss Black.

18

Add the tummy feathers.



Shake, shake, shake the Warm Brown that is in the Decorator Bottle and add the metal tip back on. Create overlapping U shapes like fish scales to represent the feathers on the tummy.

19

Paint on lines for the wing and leaf veins.



Begin at the point where the wing meets the shoulder and bring out curved lines to indicate a wing. Next, add a shaky, partially double vein line on each leaf and add some small lines under the bottom "smile" line on the pears. Allow to dry thoroughly. *Note:* You can get very creative here and add your own variations of the details. This is a fantasy scene, so anything goes!

Now is the time to clean up any areas where color and Layering Mix have gotten onto the clear areas. This will be backed with metal leafing after firing, so all the clear areas need to be nice and clean! Scrape off with a toothpick, X-Acto knife, or other similar tool.

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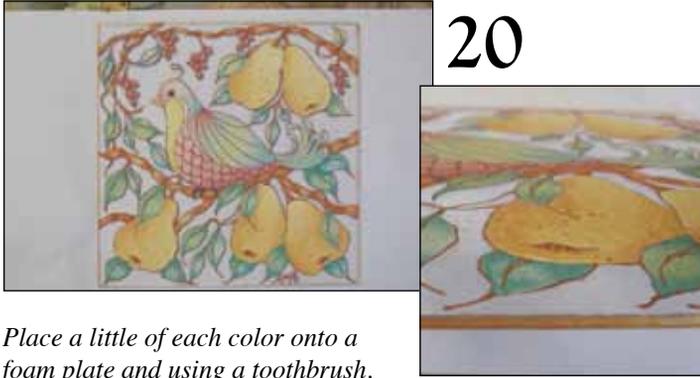


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## A Few More Details

Shake the Brass and Copper ACCENTS well, then mix them in their jars.



Place a little of each color onto a foam plate and using a toothbrush, spatter each of the colors onto the pears.

A helpful hint when spattering is to aim your thumbnail where you want the spatter to go, then drag your nail over the bristles of the loaded brush. Put a little more Brass out onto the plate. Using the flattened MMB, load in the Brass and just touch the side of the brush to the edge of the glass. Do not paint it! Let dry and repeat. If any gets on the top of the glass, I leave it. If there is any on the bottom, it gets cleaned off before firing. Let dry.

## Firing the Panel



Fire the panel.

The panel was fired with a 4-segment firing program in my programmable, fire brick, digital kiln. I coated the kiln shelf with Unique Glass Colors UGC Glass Separator and enough FREE to create an antique look to the glass after firing. I used 96 COE glass for this project, which is reflected in the firing schedule included below. Remember that you need to fire according to the glass you are using and how your own kiln fires.

Our colors have a wide firing range, so you will **always fire according to the type of glass you are using**. Note that I could have gone a bit cooler on this piece, since I did get a bit of dog-boning at the corners. To avoid that, go to 1440°F instead of 1460°F for one layer of 96 COE glass in Segment 1.

## Firing Schedule

Segment 1: Ramp 350°F/hr to 1460°F, vented to 800°F, and hold for 10 min.

Segment 2: Ramp 9999 (AFAP\*) to 1000°F and hold for 10 min.

Segment 3: Ramp 200°F/hr to 850°F and hold for 20 min.

Segment 4: Ramp 9999 (AFAP\*) to room temperature.

\*as fast as possible

## Finishing the Design



Finish the piece with some metal leafing.

I tore some of the leafing, since it looks nicer not to use the leafing in the square sheets. This is called Simple Leaf, and the leafing is attached to a piece of waxed paper so it does not fly around everywhere as you are leafing. I chose to use the Sunrise color, because of the pinks and golds that are in the leafing design. Each sheet is different. Clean the back of the glass thoroughly and dry thoroughly before using the metal leaf.

First we will apply the Metal Leaf Extra Thick Sizing/Adhesive to the back of the glass. Place some out on a foam plate, pounce the triangle makeup sponge into the sizing, then pounce off on the plate before going on to the glass. All that is needed is a thin haze of adhesive. Let dry for at least 30 minutes. If you try to apply the leaf too soon, it will not stick. However, you can wait days to apply the leafing, and the adhesive is just fine.

Begin placing torn sections to the open area of the design. Once that is done, you can use the sheets to cover the opaque areas, since they will not show from the front.

When all of the leafing is applied, use a soft, white cloth and rub over the leafing to be sure it is adhered and to brush off any bits that did not come in contact with the adhesive. If you find you have missed a spot or that the leafing just won't stick, apply a bit more adhesive to the area, wait 30 minutes, and make the repair.

Let dry, then apply a coat or two of the Metal Leaf Sealer to protect the leafing. You are now ready to display this version of the timeless image of a "Partridge in a Pear Tree!"

**GPO**

*The Spring 2016 issue of Glass Patterns Quarterly includes an additional article from Margot Clark on using the Layering Mix to paint a cockatoo. More techniques used there will add to your knowledge of glass painting.*

Margot Clark is co-owner of Unique Glass Colors (UGC) along with Harold Clark and Saulius Jankauskas, MD. UGC manufactures kiln fired glass color and MUD so "working" at UGC involves lots of "playing" with color! Margot teaches art in all forms and mediums, but glass is her passion. She participates in local art exhibits, her work is in private collections worldwide, and she has works that are part of permanent museum collections.



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# It's 5 O'clock Somewhere!

## An Introduction to Etching and Slumping

*Design and Demonstration by Barbee Bosler, Text and Photography by Mali Schulz*

Last March I walked into the Glass Craft & Bead Expo in Las Vegas, Nevada, and the first booth I came to was the Creative Paradise booth. Inspiration hit me square in the eye when I saw slumped bottles of all kinds—bent, rounded, open necked, flat necked, in all different colors. Then I saw them . . . slumped bottles that had embossed designs on the back!

I was like a bee that had just found a bouquet of flowers flying around the booth looking at all the different designs. I saw how they could be enhanced by the embossed design being etched with etchall® etching crème. Each detail would “pop” with the white etch shining through. I knew then that I had to share this easy process. Most of you have kilns or know someone who does, so empty those wine bottles, and here we go!

### Glass

Standard Size Wine Bottle, (750 ml, 11-1/2")

### etchall® Products

Etching Crème

Bottle Tip Kit

### Creative Paradise, Inc.

GM 177 Five O'Clock Somewhere Bottle Slump Mold

### Tools and Materials

Kiln, 16" Square or Larger

Brush Glass Separator

Devitrification Solution



## Slumping the Bottle

1

*Prepare the bottle.*



First things first. The wine bottle needs to be empty, clean, and dry, with the label completely removed. You may have to scrape, soak, or use an adhesive remover to thoroughly get rid of all the sticky residue.

2

*Coat one side of the bottle with a devitrification solution so that the glass does not get cloudy.*



Stand the bottle upright and use a brush to apply a solid layer of solution to the front from seam to seam. Clean off any solution that spills underneath or onto the back.

3

Apply a glass separator to the mold to prevent the glass from sticking.



In a well-ventilated area, apply the glass separator solution to all nooks and crannies of the design texture on the mold. For this project, we're using the Creative Paradise "Five O'Clock Somewhere" mold from [www.creativeparadiseglass.com](http://www.creativeparadiseglass.com), but you can find many other designs for sale on the etchall website.

4

Place the mold in the kiln on a level shelf.



Put the bottle on the mold with the side covered in devitrification solution facing upward. Fire the bottle using the following schedule for reference, supplied courtesy of Creative Paradise. Remember that temperatures may vary depending on your own kiln, so consult the instructions that come with your mold.

### Slumping Schedule

Segment 1: Ramp 300°F/hr to 1210°F and hold 45 min.  
 Segment 2: Ramp 50°F/hr to 1250°F and hold 30 min.  
 Segment 3: Ramp 300°F/hr to 1320°F and hold 15 min.  
 Segment 4: Ramp 9999 (AFAP\*) to 1480°F and hold 10 min.  
 Segment 5: Ramp 9999 (AFAP\*) to 960°F and hold 60 min.  
 \*as fast as possible

### Etching the Bottle

After the bottle is slumped, let the kiln and bottle cool naturally. Clean the slumped bottle with soap and water, not glass cleaner, since leftover residue may resist etching. Dry the bottle with a coffee filter, paper towel, or lint-free cloth and cover your workspace with a drop cloth or newspaper.

**WARNING:** etchall® etching crème will etch any glazed surface, so be mindful of your workspace! Avoid letting the crème come in contact with porcelain sinks, ceramic tiles, or glass tabletops, as one dot will become a permanent spot.

5

Fill the etchall® tip kit bottle with etchall® etching crème and apply the crème.



Carefully fill in the recesses of the design with an even line of the crème. The tip kit comes with three tips—small, medium, and large. In this case we used the smallest tip provided, but you may prefer to use a different size, depending on your design. Attach the tip to the bottle. For a personal touch, you can use the tip to write a special name or message on the reverse side.

6

Leave the crème on for 15 minutes, then rinse the etched surface with hot water to remove any remaining crème.



Remember, the product will etch porcelain sinks, so be very careful where you're rinsing!

GPO

Barbara Cahill Bosler, manufacturer of etchall etching crème, is better known as Barbee, after the bee in the company's logo. She considers herself to be one happy and blessed manufacturer and loves showing off her beloved product. Her goal is to have a jar of etchall in every home in the world.



Thanks to the company's design team of Master Etchers and Ambassadors, etchall has been able to promote etching in the stained glass, beading, decorative painting, and scrapbooking industries. The mission of the company is to provide customers with the best possible etching products along with the knowledge and encouragement to use them to their fullest potential. Through involvement in shows such as Craft & Hobby Association (CHA), Creative Painting, Society of Decorative Painters (SDP), and others, etchall educates young and old alike in all 50 states and throughout Europe and Asia, including an etchall® school in Thailand. Visit [facebook.com/etchallcream](http://facebook.com/etchallcream) to learn more about the company.

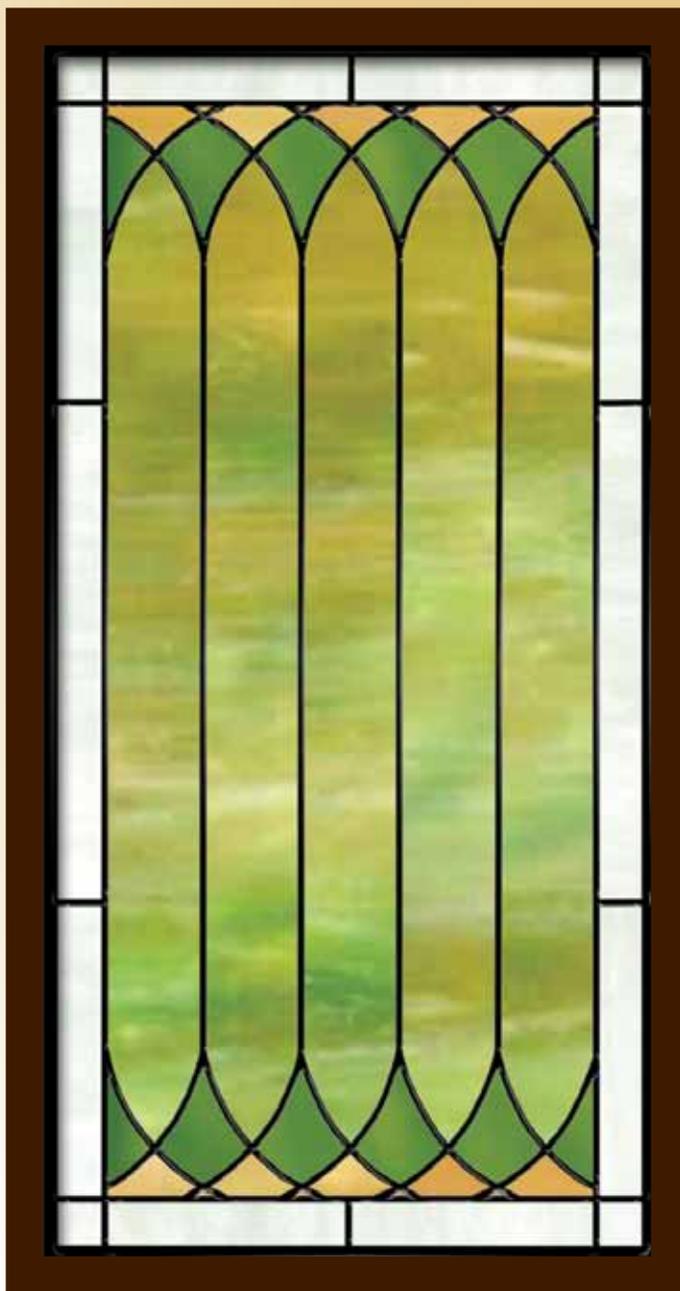
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# Traditional Elegance

*Design by Denny Berkery, Text by Delynn Ellis*

If there were a classic division for glass pattern books, *300 Stained Glass Cabinet Door Designs* by Denny Berkery would surely be at the top the list. This 12" x 24" Traditional Elegance design is one of many of his "simple line" design sections. There are also chapters on various styles including Victorian, Prairie, contemporary, art nouveau, and Southwestern, as well as wildlife, floral, scenic designs, and bevel clusters. All of the designs are exhibited in the traditional cabinet door rectangle, but you can resize them and use them for most any application.

Cabinet doors are a wonderful use of art glass, especially if your windows are not suited for architectural glass. Consider renovating a stand-alone cabinet or china hutch, or use the window panel as an accent for your kitchen. The Vinery Stained Glass Studio, located in Madison, Wisconsin, has been fabricating cabinet doors for over 25 years. Many of their tried-and-true designing tips are listed in the front of the book. Visit [www.vineryglass.com](http://www.vineryglass.com) for more of Denny's designs and shop information. **GPO**



## Wissmach Glass Company

78-L Medium Amber/Green/Opal/Crystal for Center Design, 2 Sq. Ft.

55-L Amber/Green/Opal/Crystal for Top and Bottom Outer Accents, 1/2 Sq. Ft.

101-L Dark Green/Opal/Crystal for Top and Bottom Inner Accents, 1 Sq. Ft.

WO-051 Opal/Crystal Wisspy for Border, 1-1/2 Sq. Ft.

## Tools and Materials

7/32" Copper Foil Flux Solder Black Patina 1/2" U-Channel Lead

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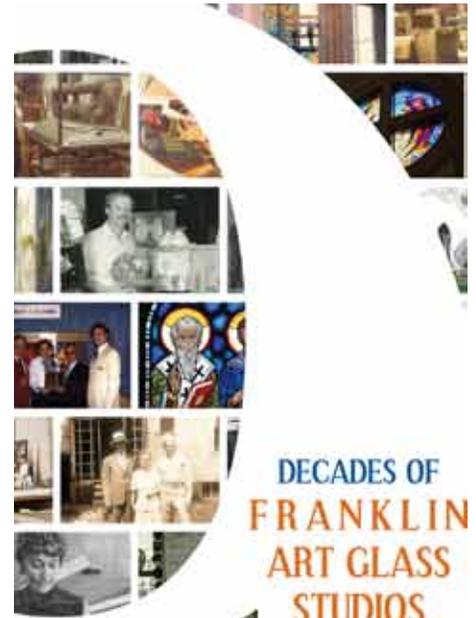
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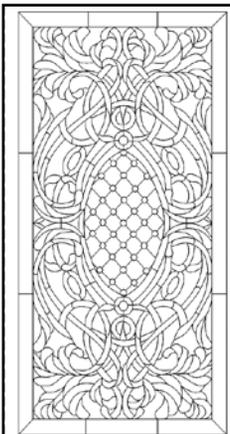


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# Noel

Design by Jean Beaulieu, Text by Darlene Welch



There's nothing quite as intriguing as seeing a beautifully wrapped gift box. Wondering who it's for and what's inside is half the fun. This 6-1/2" x 7-1/4" free-form stained glass panel is the perfect way to capture a reminder of the thrill of opening one that's just for you. If you're thinking of it as a gift for someone else, the colors of the package and ribbon can easily be changed to represent events beyond the holidays, including birthdays, wedding gifts, or any or theme you desire.

This pattern comes from the collection of 17 patterns in the *Holiday Spirit* collection from Canadian glass artist and painter, Jean Beaulieu. A wide range of patterns includes bells, candy canes, Christmas ornaments, snowmen, Santa, angels, and many other seasonal designs.

A very socially involved artist, Beaulieu has worked for many years to help the cause of youth in the streets, teaching them the wonders of stained glass art. He desires to give hope to others by sharing his art. Visit [www.jeanbeaulieu.com](http://www.jeanbeaulieu.com) to learn more about the artist and his work.

**GPO**

#### Wissmach Glass Company

197-N Dark Blue/Yellow Green/Light Opal for Background, 2 Sq. Ft.

57-LL Medium Green/Opal/Crystal for Box, 1 Sq. Ft.

WO-28 Orange/Opal for Ribbon, 1 Sq. Ft.

#### Tools and Materials

7/32" Copper Foil Flux Solder

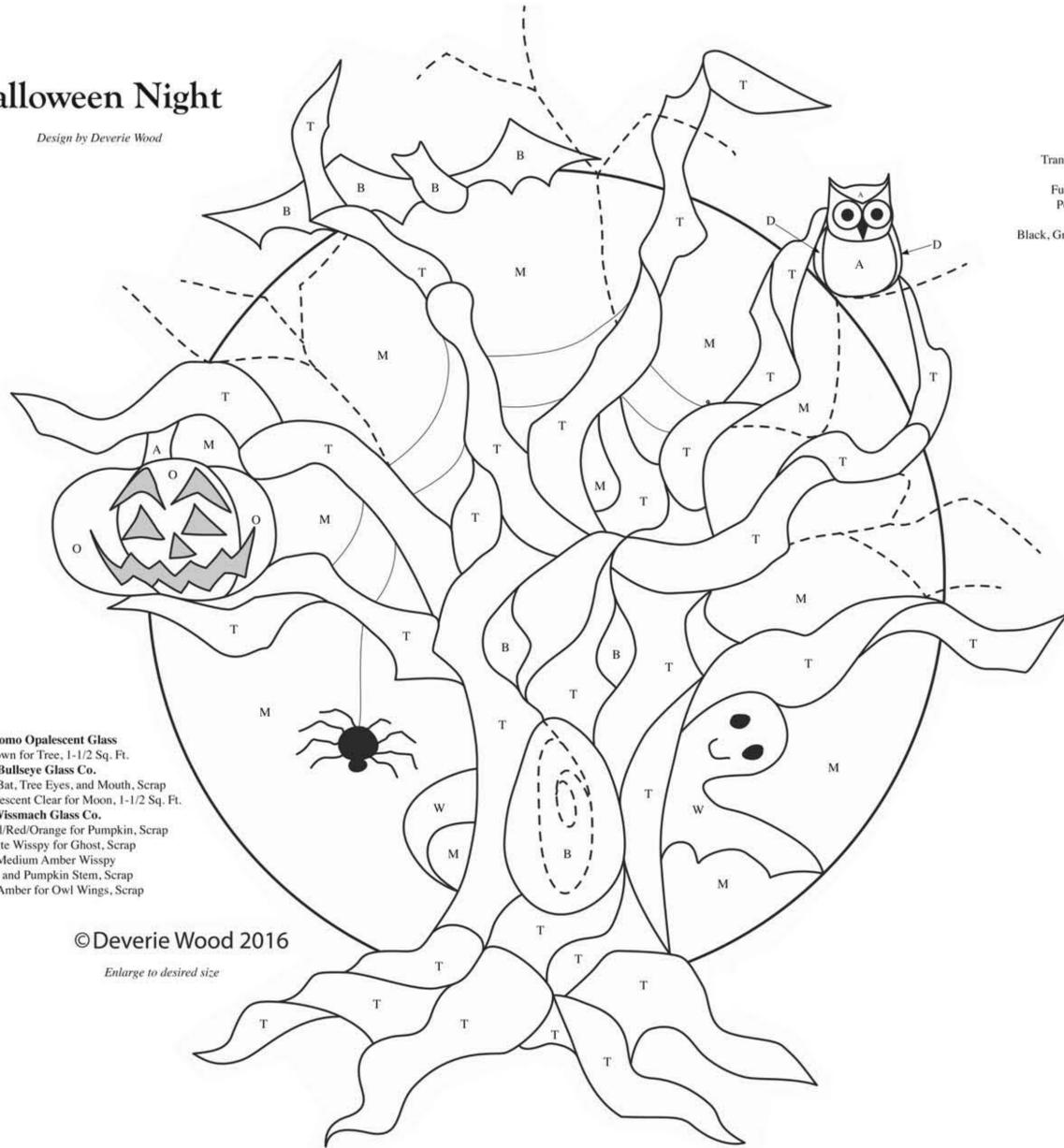
Black Patina 1/4" U-Channel Lead

Copper Wire

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# Halloween Night

Design by Deverie Wood



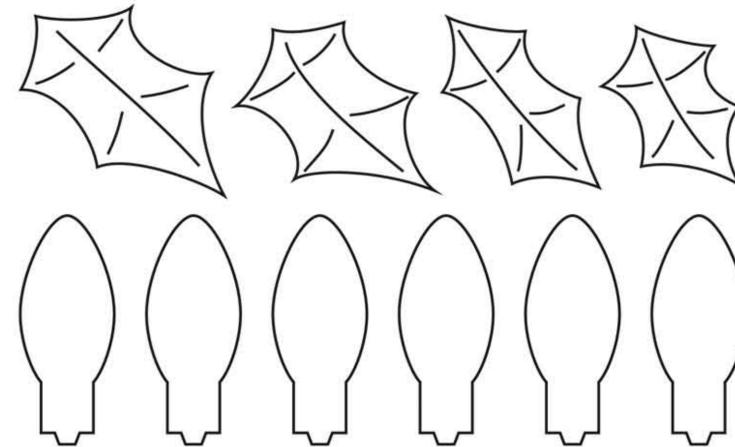
**96 or 90 COE Glass**  
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 White Opal for Base, 12" square or 11-1/4" disk  
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**Kokomo Opalescent Glass**  
 T - Brown for Tree, 1-1/2 Sq. Ft.  
**Bullseye Glass Co.**  
 B - Black for Bat, Tree Eyes, and Mouth, Scrap  
 M - Rainbow Iridescent Clear for Moon, 1-1/2 Sq. Ft.  
**Wissmach Glass Co.**  
 O - White Opal/Red/Orange for Pumpkin, Scrap  
 W - White Wispy for Ghost, Scrap  
 A - Medium Amber Wispy for Owl and Pumpkin Stem, Scrap  
 D - Dark Amber for Owl Wings, Scrap

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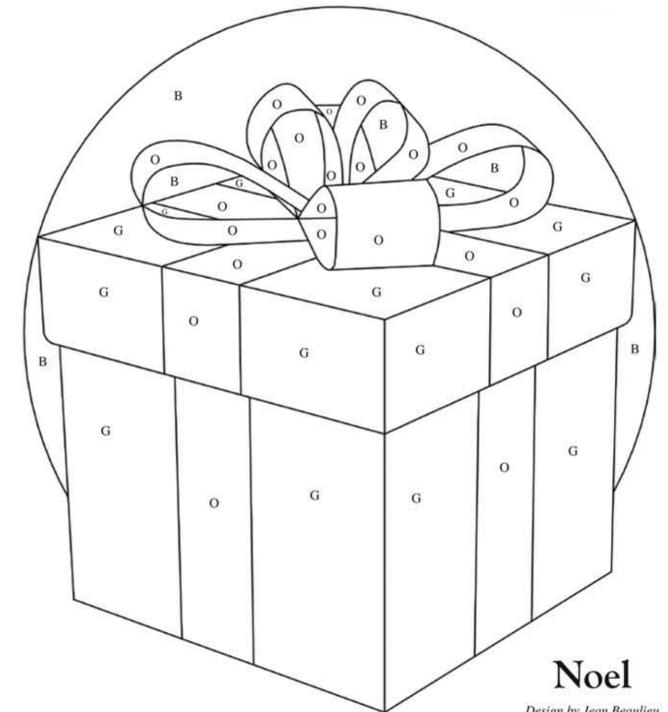
Enlarge to desired size



# Festive Lights Bowl with Cast Foot

Design by Randy and Carole Wardell

Copy bulb pattern to create desired number of bulbs.



# Noel

Design by Jean Beaulieu

**Wissmach Glass Company**  
 B - Dark Blue/Yellow Green/Light Opal for Background, 2 Sq. Ft.  
 G - Medium Green/Opal/Crystal for Box, 1 Sq. Ft.  
 O - Orange/Opal for Ribbon, 1 Sq. Ft.

# Fruit and Wine

Design by Hiroyuki Kobayashi and Jeffrey Castaline

**Wissmach Glass Company**  
 502-L Opal/Medium Gray/Brown for Tabletop, 3 Sq. Ft.  
 65-L Medium Brown/Blue/Light Opal for Background, 8 Sq. Ft.  
**Following Glass cut from Scrap**  
 WO-503 Opal/Dark Gray/Brown for Tabletop Shadows  
 44-L Burgundy/Crystal for Wine  
 65-D Medium Brown/Blue/Dense Opal for Wine Bottle  
 WO-238 Dark Purple/Dark Blue/Opal/Crystal Wispy for Bottle Label  
 11-LLG Red/Amber for Strawberries  
 217-LL Medium Purple/Yellow Green/Opal/Crystal for Pineapple  
 61-L Green/Brown/Opal/Crystal for Pineapple Top  
 WO-67 Dark Purple/Opal/Crystal for Grapes  
 57-L Medium Green/Opal/Crystal for Grapes  
 1-D Silver Yellow/Dense Opal/Crystal for Bananas  
 WO-17 White Opal/Red/Orange for Peaches  
 146-L Yellow Green/Opal/Crystal for Limes  
 155-LL Dark Purple/Green/Light Opal/Crystal for Background and Stems  
 223-LL Light Amber/Dark Brown Streaky for Basket  
 Black for Basket Interior



Enlarge to desired size

# Gilded Partridge in a Pear Tree

Design by Margot Clark

96 COE Glass  
 10" Squares of Clear Glass  
**Unique Glass Colors**  
 NT Colors  
 1958 Turquoise  
 1963 Tulip Yellow  
 1965 Amber  
 1966 Warm Brown  
 1968 Tan  
 1969 Glass Black  
 1977 Jade  
 1995 Apple Green  
 1996 Golden Orange  
 11002 Tomato  
 11003 Britie Pink  
 11008 Burgundy  
 11016 Vanilla  
 11022 Sea Green  
**ACCENTS**  
 701 Brass  
 702 Copper





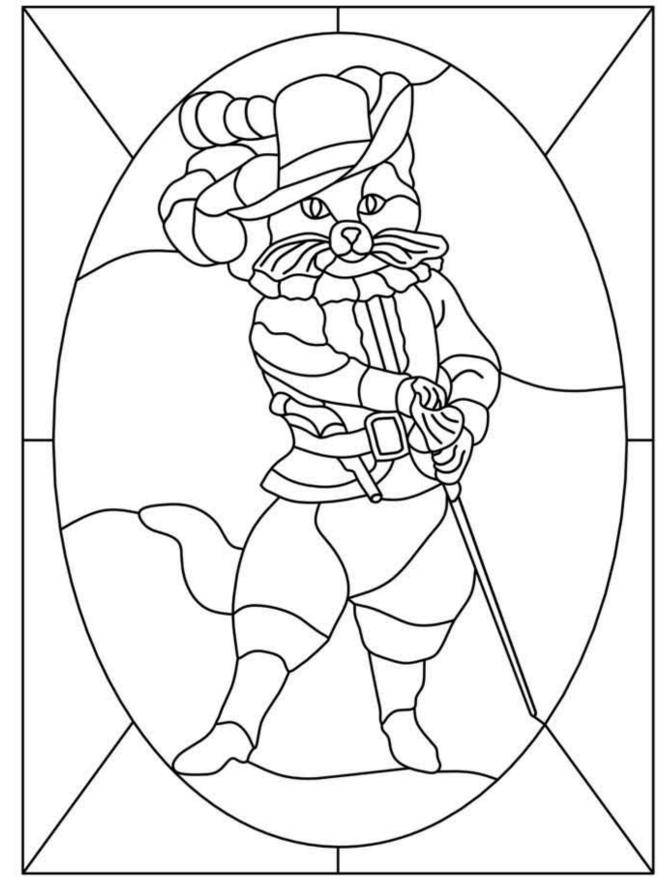
Enlarge to desired size

## Jingle Bears

design by Robin Anderson

**Wissmach Glass Co.**  
 85-L Medium Purple/Sky Blue/Opal/Crystal for Sky, 1/2 Sq. Ft.  
 78-D Medium Amber/Green/Opal/Crystal for Trees, Scrap  
 51-DDXXM-Irid Opal Swirled with Crystal Iridescent for Snow, 3 Sq. Ft.  
 51-DDXXM Opal Swirled with Crystal for Snow, 2 Sq. Ft.  
 315-D Medium Amber/Opal for Sled, 1 Sq. Ft.  
 199-LL Medium Amber/Dark Amber Brown for Front Bear, 2 Sq. Ft.  
 1-L Silver Yellow/Opal/Crystal for Front Bear Jacket and Pants, 3 Sq. Ft.  
 WO-188 Grey Blue/White Opal for Front Bear Jacket Trim, Scrap  
 77-L Light Brown/Yellow Green/Opal for Rear Bear, 2 Sq. Ft.  
 199-G for Rear Bear Jacket and Pants Trim, Scrap  
 23-L Light Green Opal/Copper Red for Rear Bear Jacket and Pants, 1 Sq. Ft.  
 WO-28 Orange/Red for Hats, Scrap

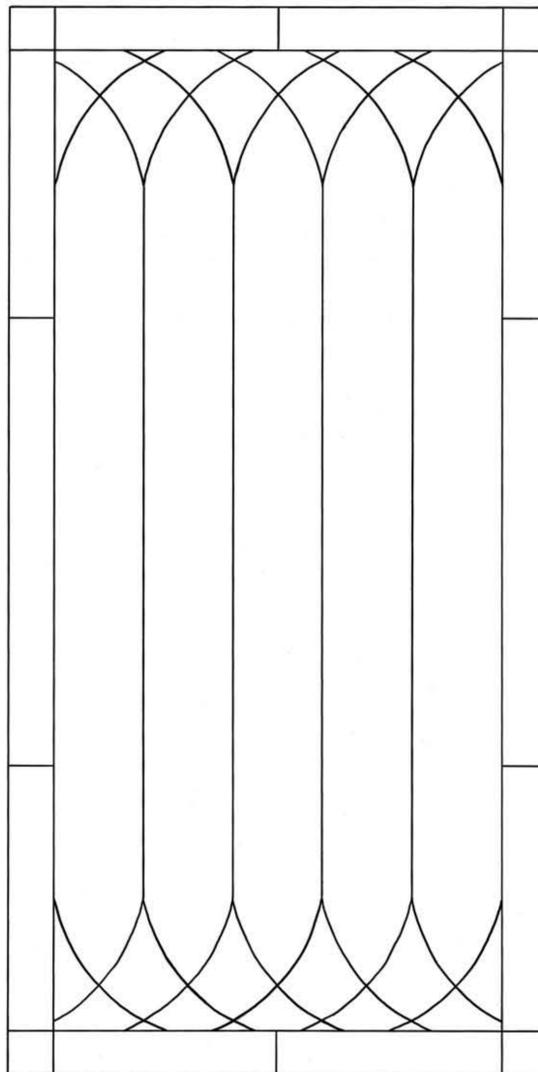
**Spectrum**  
 151RR Red Rough-Rolled for Border Area, 12" x 18"  
 Following Glass cut from Scrap  
 3671 Yellow/White Streaky for Plumes  
 3951 Pink/White for Plumes  
 3872 Dark Gray/Medium Gray for Pistol, Saber, and Hat  
 3276 Dark Green for Jacket Trim  
 3571 Red/Oranges for Jacket  
 20161 Ivory for Collar  
 1009 Black for Belt  
 3156 Tans for Boots  
 121 Yellow Green Transparent for Eyes  
**Bullseye Glass Co.**  
 3203-30 Woodland Brown for Body, Scrap  
**Additional Glass**  
 GC100 Clear Glue Chip for Oval, 12" x 14"



Enlarge to desired size

## Puss in Boots, the Dapper Cat

Design by Robin Anderson



Enlarge to desired size

## Traditional Elegance

Design by Denny Berkery

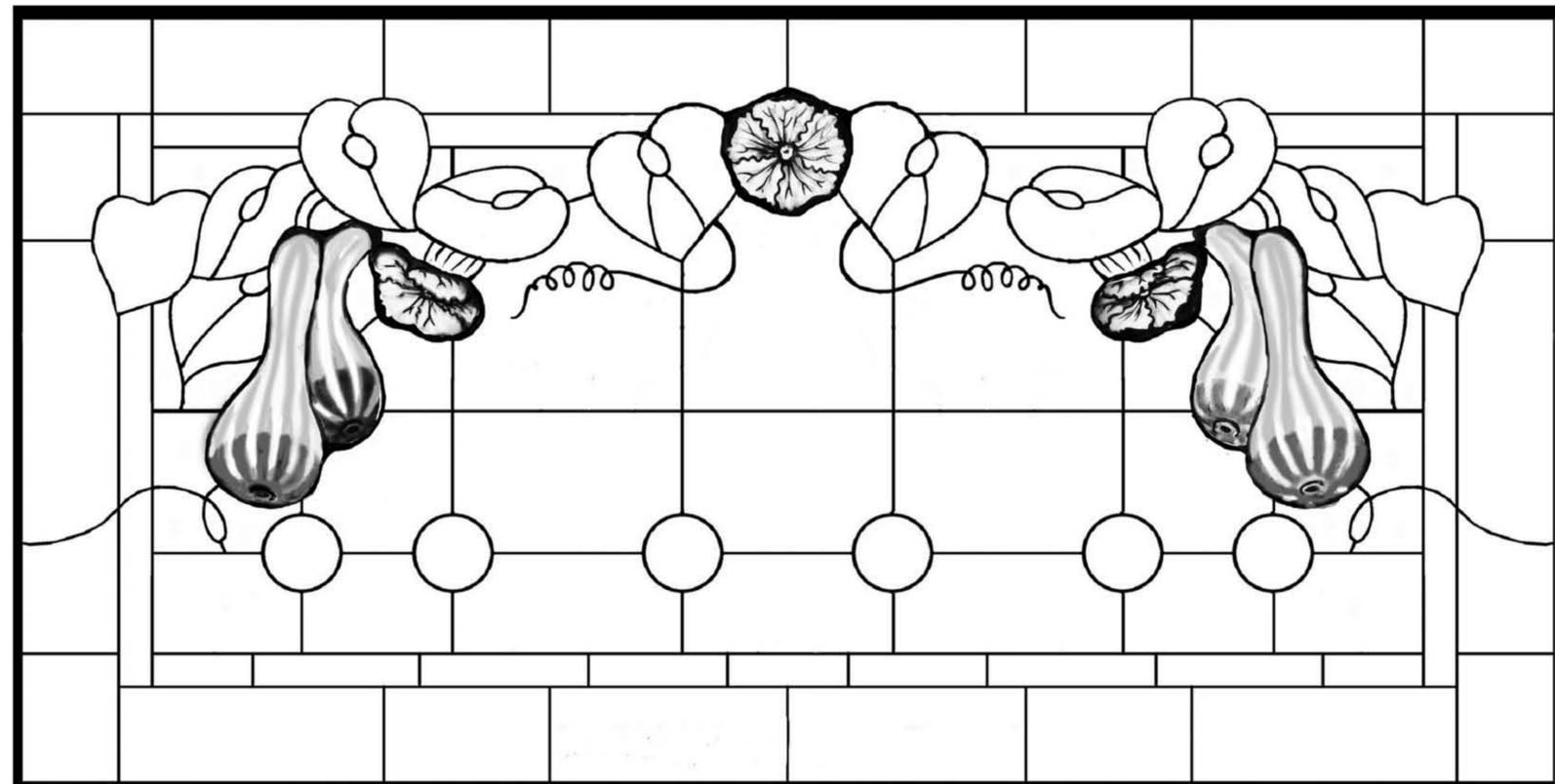
**Wissmach Glass Company**  
 78-L Medium Amber/Green/Opal/Crystal for Center Design, 2 Sq. Ft.  
 55-L Amber/Green/Opal/Crystal for Top and Bottom Outer Accents, 1/2 Sq. Ft.  
 101-L Dark Green/Opal/Crystal for Top and Bottom Inner Accents, 1 Sq. Ft.  
 WO-051 Opal/Crystal Wispy for Border, 1-1/2 Sq. Ft.

## September Showers

Design by Chantal Paré

**Uroboros Glass Studio**  
 65-14 Dark Brown/Light Brown/Emerald Green, 1 Sq. Ft.  
 65-785 Seacrest Opal/Antique White Opal/Green/Brown, 1/2 Sq. Ft.  
**Spectrum Glass Company**  
 100 RW Clear Rainwater\* (Wissmach Dew Drop-01), 3 Sq. Ft.  
 100N Seedy Clear Satin Seedy\* (Wissmach Seedy-01), 1-1/2 Sq. Ft.  
 100C Clear Cord\* (Wissmach Stream X-01), 1 Sq. Ft.  
**Wissmach Glass Co.**  
 51-LL Very Translucent White Cast Opal  
**Additional Glass**  
 3 mm Clear Float Glass, 2 Sq. Ft.  
 35 mm Round Glass Cabochons, 6  
**Reusche & Co.**  
 1059 Stencil Black  
 R1383 Orange #2  
 7870 Dark Green  
 RD25822 Chartreuse  
 1 teaspoon of each color

\*Starred choices refer to the Spectrum glass shown in this tutorial.  
 Due to the closing of Spectrum, a similar type of glass is listed in parentheses.



Enlarge to desired size

# Jingle Bears

Design by Robin Anderson, Text by Delynn Ellis



We all like a twist on traditional Christmas scenes. Watching two bears dashing through the snow in this 24" x 17" panel is just

that! Jingle Bears is an excerpt from Robin Anderson's newly crafted book, *Whimsical Critters*. This pattern collection is based entirely on Victorian and vintage images originally found in advertising and trading cards from the late 1800s. Robin, a self-proclaimed animal enthusiast, has taken her designs a step further by giving them whimsy and personality.

One of the elements that brings these Victorian critters to life is the exquisite detail, including faces, hands, feet, folds in clothes, and other intricate features. Such tiny details often simply cannot be done with individual pieces of glass, since they would be impossibly small to work with. Robin provides a solution by including separate lines on her patterns suggesting areas for copper foil overlays.

An alternative method to doing overlays is using nonfired acrylic enamel paints, which you can get at any hobby store. Either method will give you all the detail you wish. She also offers many tried-and-true tips on choosing glass, burnishing foil, cutting inside curves, using foil overlays, and painting on the details. Visit her website at [www.sunnybrookstudio.com](http://www.sunnybrookstudio.com) for more about Robin's work.

**GPO**

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## Wissmach Glass Co.

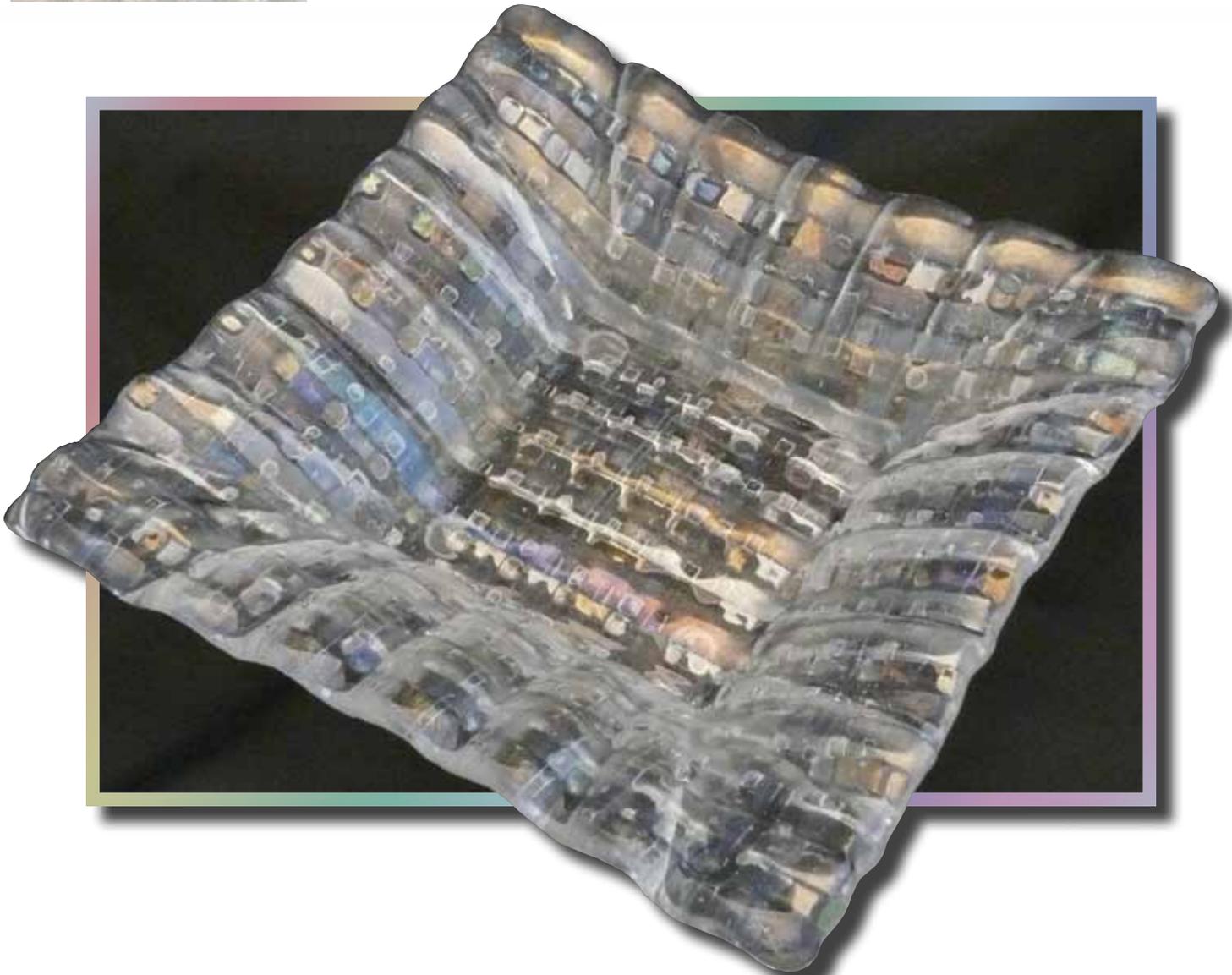
- 85-L Medium Purple/Sky Blue/Opal/Crystal for Sky, 1/2 Sq. Ft.
- 78-D Medium Amber/Green/Opal/Crystal for Trees, Scrap
- 51-DDXXM-Irid Opal Swirled with Crystal Iridescent for Snow, 3 Sq. Ft.
- 51-DDXXM Opal Swirled with Crystal for Snow, 2 Sq. Ft.
- 315-D Medium Amber/Opal for Sled, 1 Sq. Ft.
- 199-LL Medium Amber/Dark Amber Brown for Front Bear, 2 Sq. Ft.
- 1-L Silver Yellow/Opal/Crystal for Front Bear Jacket and Pants, 3 Sq. Ft.
- WO-188 Grey Blue/White Opal for Front Bear Jacket Trim, Scrap
- 77-L Light Brown/Yellow Green/Opal for Rear Bear, 2 Sq. Ft.
- 199-G for Rear Bear Jacket and Pants Trim, Scrap
- 23-L Light Green Opal/Copper Red for Rear Bear Jacket and Pants, 1 Sq. Ft.
- WO-28 Orange/Red for Hats, Scrap

## Tools and Materials

- 7/32" Copper Foil Flux Solder
- Black Patina 1/4" U-Channel Zinc
- Copper Wire Copper Foil (optional)

# Contemporary Crystal Woven Glass Bowl

*Design, Fabrication, and Text by Gina Sneiderman*



When first starting my glass journey, I drew upon inspiration from my grandmother, who loved lead crystal and brought much of it with her from Vienna, Austria, when she emigrated to this country in the very early 1900s. Growing up playing with her precious lead crystal seals, I realize that they are the source of my fascination with clear glass art—the thicker and shinier, the better.

When first joining several fused glass groups on Facebook, I began to see an assortment of strip construction and woven glass projects. I decided to combine the two styles to make a four-layer-thick piece of art glass that would remind me of the lead crystal that is still cherished throughout my home.

This is an easy project although a little time consuming, since you will need to cut 80 strips of glass. Don't let the number of strips concern you, however. If you have a system, it goes quickly. I chose four types of Bullseye clear glass for this project.

## **Bullseye Glass Co.**

001401-0380 3mm Tekta  
001101-0037 3mm Silver Irid on Clear  
001101-0308 Gold Irid on Clear  
001101-0031 Rainbow Irid on Clear

## **Tools and Materials**

Running Pliers Pencil Grip Glass Cutter  
Cutting Oil Strip Cutter Pencil  
Ruler Scissors 1/2" Kiln Posts  
ThinFire Paper Boron Nitride Spray  
Slumpy's SM-9055 Square Fluted Mold  
Bullseye GlassTac Glue (optional)

1

*Cut and score each of the four glass pieces.*

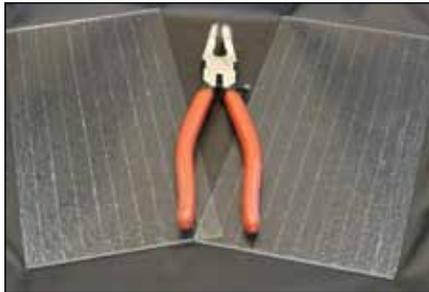


Starting with the Tekta, cut a piece of glass that is 9" x 10", then cut the Silver on Clear Irid, the Gold on Clear Irid, and the Rainbow on Clear Irid. You should now have 4 sheets of glass, each of which are 9" x 10".

Next, score the Tekta using the pencil grip glass cutter at 1/2" intervals until you have twenty 1/2" x 9" strips of Tekta, all marked out for breaking. Repeat this with the other 3 pieces of Irid on Clear glass, making sure that you keep each color separated. This is an important tip, because if you mix up the colors of Irid on Clear, it will be extremely difficult to separate them again.

2

*Using the running pliers, break the precut sheet of Tekta in half, having ten 1/2" strips on each side of the running pliers.*



Repeat this with the other 3 pieces of clear/irid glass, again keeping each color separated.

3

*Break the precut half sheet of scored Tekta in half, again using the running pliers.*



Repeat this with the other 3 pieces of clear/irid glass, still keeping each color separated.

4

*Keep breaking all the strips until you have twenty 1/2" x 9" strips in each Irid on Clear color.*



Note here that you will have more strips than you need. If you don't have a lot of experience with cutting strips, you'll have either a safety net or enough pieces to complete a smaller complimentary project.

5

*Carefully clean the glass strips before proceeding, making sure you keep the different glasses separated.*



Take a few minutes and carefully clean all of your glass strips, one color at a time, because you used oil in your cutter. Take extra caution to keep the colors separated. Dry all of the strips with a lint free towel. Make it a point to set out the strips with the Irid coating facing up. You can carefully use your fingertip to feel the dull quality of the Irid coating versus the slippery surface of the noncoated clear side. Don't trust just your eyes.

6

*Build the piece directly on the kiln shelf.*



Cut a piece of ThinFire paper to fit your kiln shelf. Cut it larger than the glass, just in case the glass moves, and weigh it down with a few snippets of clear scrap so the paper can't curl up during firing. Mark the center of the paper so you can keep yourself on track.

Next, draw a 9" x 9" square on the ThinFire paper with your pencil. You are going to build the piece right on the kiln shelf on top of the ThinFire paper, so that is why you've marked it up. Another important tip is to be sure you've raised your kiln shelf off the floor of your kiln, using three 1/2" kiln posts.

Starting the first layer with clear Tekta strips, lay the first strip down flat and snug it up to one of the lines you drew. You can use a 1/4" piece of clear Tekta as a spacer between pieces if you're not one to eyeball things.

Complete the first layer using 11 more strips of 1/2" x 9" pieces of glass. Keep each strip relatively straight. Space them out evenly so that the last strip is on the line opposite from where you started.

7

*Start the second layer using Silver on Clear Irid strips at a 90-degree angle to the first row.*



Space the strips out 1/4" inch apart as you did for the first layer, beginning at one edge, with the Irid side up. Complete the 2nd row using 11 more strips of 1/2" x 9" pieces of this glass. Make sure you have a crosshatch pattern with open spaces in between.

**8**  
Start the third layer using Gold on Clear Irid, following the same pattern as you used in the first layer.



The pieces in the third layer will be directly above the pieces in the first layer, maintaining that crosshatch pattern. Make sure you are working with the Irid side up.

**9**  
Start the final layer using the Rainbow on Clear Irid, following the same pattern as you used in the second layer.



The pieces in the fourth layer will be directly above the pieces in the second layer, again maintaining the crosshatch pattern. Make sure you are working with the Irid side up. Now you should have all 4 layers of glass assembled on the kiln shelf and be ready to full-fuse the blank. I don't use any glue, but if your hand isn't steady, you can use a tiny dot of blue Bullseye GlassTac Gel to hold the layers.

Keep the blank free-form so there are slight curves on the end of the pieces of glass after fusing. They should match up nicely to the flutes on the mold. If you prefer, you can dam the blank to keep it very square. Just remember to use some 1/8" fiber paper between the dams and glass so you can separate the dams without cracking the glass after fusing. The blank will be thicker because it won't spread out at all, so make sure to add extra annealing time. If you use dams, you will also need to cold work the edges, which is another reason why I keep my edge organic.

The following firing schedule is the one I used for my brick kiln. You may need to adjust it to fit your own particular kiln. The hold time in segment 4 is longer than normal, since the piece has 4 layers.

### Full Fusing Schedule

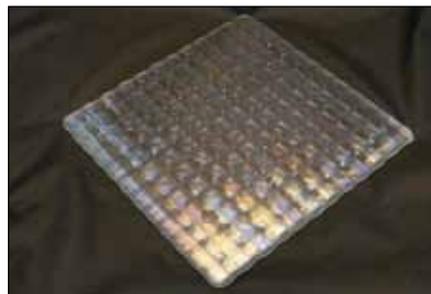
- Segment 1: Ramp 200°F/hr to 1000°F\*\* and hold 30 min.
  - Segment 2: Ramp 9999 (AFAP\*) to 1350°F and hold 30 min.
  - Segment 3: Ramp 500°F/hr to 1425°F and hold 20 min.
  - Segment 4: Ramp 9999 (AFAP\*) to 900°F and hold 2 hours
  - Segment 5: Ramp 100°F/hr to 700°F and off.
- Let come to room temperature. No peaking!

\*as fast as possible

\*\* Vent the kiln up to 1000°F to help with burning off the binders in the ThinFire, since we're using Irids in this project. The venting helps to eliminate devitrification.

**10**

Once completely cooled, remove the fully fused blank from the kiln and clean it up.



Use warm water and a soft toothbrush on both sides, then dry thoroughly. Admire the lovely colors that the Irid glasses have supplied and marvel over how the glass trapped all those bubbles perfectly between your crosshatched pattern. Say ooh! Say aah!!

**11**

Apply Boron Nitride spray to the inside of the mold.



While letting the glass dry after cleaning, take the can of ZYP Boron Nitride Mold Release Spray, formerly known as MR-97, and your mold outdoors. Shake the can until you don't hear the mixing balls any longer. Hold the can and the mold vertical. Spray in one direction, giving the mold a healthy coat, but not so much that it drips. Let the spray dry at least 15 minutes between coats and repeat.

On a new mold, I like to use 4 coats of spray, each one applied by rotating the mold 90 degrees, but still holding the mold and the can vertical. Do not spray down into the mold, because you won't be dispensing enough product onto the mold to keep the glass from sticking. If you've already sprayed the mold and fired on it previously, give it a light brush off, then recoat with a light, all-over mist for about 30 seconds.

Once the mold is thoroughly dry, place it in the kiln on top of four 1/2" kiln posts, being careful to keep them in the corners so they don't build up too much heat elsewhere. Use three 1/2" kiln posts under the shelf and four 1/2" kiln posts on top of the shelf beneath the mold for plenty of air circulation. Center the beautiful Irid on Clear glass blank on top of the mold and slump. The slumping schedule I used for my brick kiln follows. Again, you may need to adjust it to fit your own kiln.

### Slumping Schedule

- Segment 1: Ramp 200°F/hr to 1000°F and no hold.
  - Segment 2: Ramp 500°F/hr to 1280°F and hold 20 min.
  - Segment 3: Ramp 9999 (AFAP\*) to 900°F and hold 2 hrs.
  - Segment 4: Ramp 100°F/hr to 700°F and off.
- Let come to room temperature. Again, no peaking!  
\*as fast as possible

Once the piece is completely cooled, remove the fully fused bowl from the kiln and clean it. Use rubbing alcohol and a soft toothbrush on the back to melt away any mold release spray that might remain after slumping. Dry thoroughly. **Do not try to clean with vinegar or dark soft drinks on your beautiful Clear Irid Bowl.**

Now turn the bowl in every direction to capture the play of the light off of the 3 colors of Clear Irid glass you used, set off by the entirely clear first layer. The bowl will weigh about 2-1/2 pounds and will be nice and thick, just like my grandmother's Austrian Lead Crystal.

**GPO**



*Gina Sneiderman became a glass artist after a 40-year career, split between corporate America and owning her own businesses in both New Jersey and Florida. Having always dabbled in the arts to maintain her sanity, she sought a creative outlet after retiring and came across a Groupon for a fused glass class at McMow Art Glass, a Bullseyes Glass Co. dealer in Lake Worth, Florida. Four years later, Gina has taken classes at the Glass Craft & Bead Expo in Las Vegas, Nevada, and from numerous teachers throughout Florida.*

*Gina's home studio is a rolling glass shop in her garage, where everything is on wheels so the cars can still pull in at night. When she travels, she makes it a point to meet up with fellow glass artists that she's met on Facebook and continues to hone her craft.*

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**A glass journal for the flameworking community**

502.222.5631  
theflow@theflowmagazine.com

Tim Keyzers  
Photo by Mason Linder

[www.theflowmagazine.com](http://www.theflowmagazine.com)

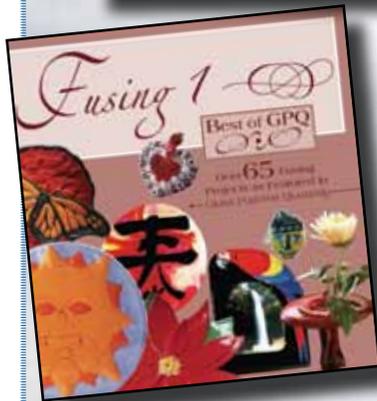
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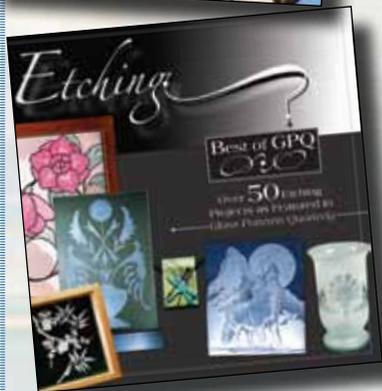
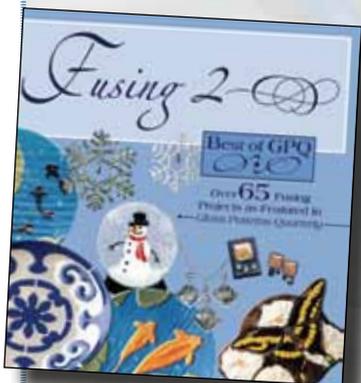
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## What's New



**Wissmach Glass Co.** has many options for glass artists through its **Wissmach 96™ line**, which is made for glass fusing and kiln forming. Special care is taken to avoid devitrification, and all of the company's glass is tested to fire with any other glass that is labeled 96 COE. The 96 Opaque colors include black, white, grays, blues, greens, violet, and gold. The Transparent sheets come in golds, blues, cinnamon, green, and teals. All of the colors are available with Wissmach's Luminescent coating. Visit the company's website for more information on these and all of the company's wonderful offerings.

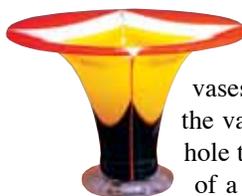
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**His Glassworks** is pleased to announce a **new steel welded 18-gauge tabletop sandblast unit**. It is now in limited availability at a low introductory price for efficiently and easily sandblasting small objects and saving space in your studio. The BT20 sandblast unit measures 20" x 18" x 28", uses 3.6 CFM of air at 50 psi, and offers a great solution for the small shop. It's available now online or by phone. Visit the company's website or call to order.

800-914-7463 828-254-2559

[www.hisglassworks.com](http://www.hisglassworks.com)



**Wardell Products** presents the all-new contemporary design **Circle-Square Drop-Thru Mold** for creating spectacular footed vases using this new three-piece forming system. The top outer rim of the vase starts as a two-layer circle design, then drops through a square hole that automatically aligns the glass drop to hit and fuse to the center of a precast glass foot disk. Turn the mold ring 1/3 of a revolution to change the height to 5", 4-1/4", or 3-1/2" for three distinctly different vases. Purchase the complete Drop-Thru Bundle that includes the Foot Casting Mold and Tripod Base plus the new Circle-Square Drop-Thru ring, or purchase the ring separately. Visit the website to watch a video of this remarkable mold in action.

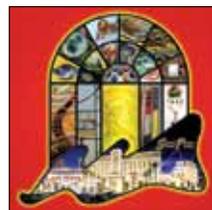
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[www.joyoffusing.com](http://www.joyoffusing.com)

**Creative Paradise Inc.** presents **three new molds**. The GM196 6" Small Organic Control Drop can be used to make smaller organic slurry flowers or to slump flowers designed from patterns. The LM148 molds can make 12 1" jewelry disks at a time for a great classroom project. The GM197 Drop Center Bottle Slump molds bottles with a deep recessed center for a dainty planter or a appetizer dish.

316-794-8621 [creativeparadiseglass.com](mailto:creativeparadiseglass.com)

[www.creativeparadiseglass.com](http://www.creativeparadiseglass.com)



**Glass Craft & Bead Expo** is pleased to announce that it is coming together with the **International Society of Beadmakers (ISGB)** to offer an **amazing opportunity in 2017**. ISGB will be holding its annual conference, The Gathering, March 28–April 2, and Glass Craft & Bead Expo will be held March 29–April 2. ISGB will also add to the tradeshow with its Glass, Beads & Jewelry Bazaar on April 1, and this all takes place in one location at the South Point Hotel & Casino in Las Vegas, Nevada. While the two events will still be operating independently of one another, 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. Four hot glass rooms will be designated for that purpose, and the ISGB instructors will have the option to also 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.

Details for each of these events will be available on the organizations' websites in the fall.  
[www.glasscraftexpo.com](http://www.glasscraftexpo.com)  
[www.isgb.org](http://www.isgb.org)

**D&L Art Glass Supply** allows artists to present their work in style. **Display plates, bowls, and panels with elegant stands** that are now available. These sturdy interlocking stands are designed to easily break down for storing, ship flat, and are available in two sizes and finishes. The stands and all new items can be seen on the company's website.  
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**Ed Hoy's International** has now added **new Wissmach fusible glass sample packs** to its world-class inventory. In an effort to present the versatile colors and styles of fusible Wissmach glass products to the public, the company has created an eclectic blend of Wissmach sheet glass designed to give artists a deeper scope of one of the nation's oldest and most respected glass producers. These latest sample packs include ten 8" x 8" sheets of Wissmach fusible glass. Interested glass artists can learn more about Wissmach glass products available through Ed Hoy's International or purchase these new sample packs online.  
 800-323-5668 [info@edhoy.com](mailto:info@edhoy.com)  
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**Victorian Art Glass** is offering **Spectrum Cullet Surprise Packs**, a surprise assortment of Spectrum System 96® cullet in limited quantities and colors while still available. The Surprise Packs contain 12 one-pound bags of cullet and include one each of clear, black or white, and a hot color (red, orange, or yellow), plus 9 assorted common colors. Specific Colors can only be ordered in 50-pound 5-gallon pails. Colors include: F100 Clear, F1009 Black, F123 Medium Green, F130-8 Pale Blue, F140-8 Pale Purple, F146 Dark Purple, F151 Red, f161 Yellow, F171 Orange, F200 White Opal, F211-74 Chestnut Opal, F211 Chocolate Opal., F218-71 Stone Opal, F518-1 Bronze, F523-2 Teal, F528-1 Sea Green, F532-1 Caribbean Blue, F533-1 Sky Blue, F533-2 Topaz, F533-3 Dark Aqua, and F538 Light Steel. Available only while supplies last. Visit the company's website or e-mail for more details and to purchase these pack assortments or single-color pails.  
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Allegandro Herrera

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# Holiday Fused Spoons

*Design, Fabrication, and Text by Kelley Mc Hugh*



It is never too early to start planning for the holidays. This serving spoon is not only a great gift but also a wonderful way to add personality to your own table ensemble. Here are two festive themes for the spoon that will get you started.

## **Uroboros Glass Studios**

### ***Autumn Spoon***

96 COE Fusible Sheet Glass

13-5262-96 Moss Green Stringers & Frit on Clear Mardi Gras

96 COE Glass Confetti

CN-704-96 Yellow Green

CN-2114-96 Chestnut Opal

CN-520-96 Plum Opal

CN-62-96 Burgundy Striker

### ***Festive Spoon***

96 COE Fusible Sheet Glass

CN-003-96 Red Reactive Transparent

61-402-96 Aqua Blue

60-774-06 Ming Green

## **Creative Paradise Inc.**

GM188 Mold

### **Tools and Materials**

Glass Cutter Grozer Pliers Sharpie® Marker

Running Pliers Liquid White Gold or Platinum

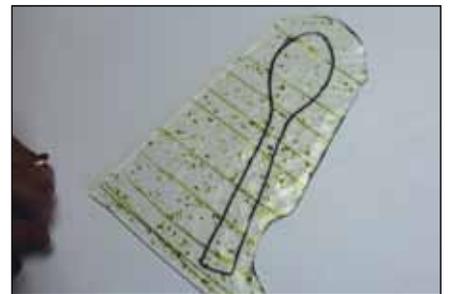
Fine-Point Liquid Metallic Applicator Pen

ZYP Boron Nitride Glass Separator Spray

## **Autumn Spoon**

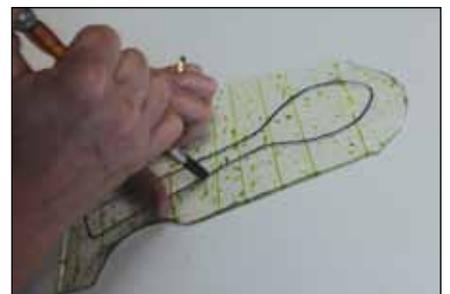
# 1

*Trace the spoon pattern onto the Moss Green Mardi Gras glass.*



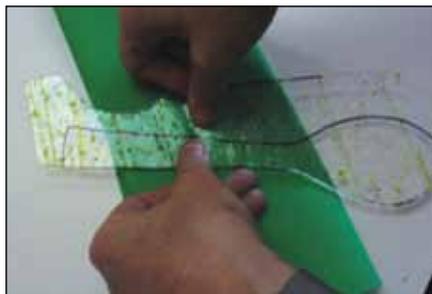
# 2

*Carefully score the glass following the traced lines.*

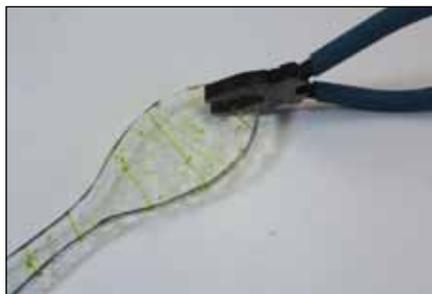


Use the running pliers to apply a bit of pressure to the scored line until the spoon shape starts to break away from the sheet glass. Be careful to not apply too much pressure. Flip the glass, score side down, onto a Fun Foam craft sheet or other surface with give to it.

3  
Apply pressure with your thumbs to either side of the score where the inside curve is at the base of the spoon bowl.



4  
Once the spoon is cut out, use the grozer pliers to grind away any burrs or rough edges on the glass around the outer edge of the spoon.



5  
Decorate the spoon handle by placing pieces of the Glass Confetti on the handle area in alternating fall colors.



6  
When you are finished decorating the spoon, place it on a GM188 mold that has been treated with ZYP Boron Nitride mold release spray.



The GM188 has a small line marked on the spoon end and handle end of the mold to indicate the center so that you can line the spoon up accordingly when you place it on the mold. Fire the glass spoon on the mold using the schedule provided at the end of the tutorial.

## Festive Spoon

The steps for beginning the festive spoon are the same as steps 1 through 3 used to create the Autumn Spoon, but this time we'll be using Red Reactive Clear sheet glass for the base. Red Reactive is a special glass made by Uroboros that reacts with copper bearing glasses, such as the ones used for the decorative squares on the Festive Spoon handle.

Ming Green has some copper in it, and when it reacts with the Red Reactive glass it turns a shade of burgundy. The Aqua Blue glass has more copper in it than the Ming Green. When it reacts with the Red Reactive glass, it will turn a deep oxidized copper color.

7  
Cut and position the decorations for the Festive Spoon handle.

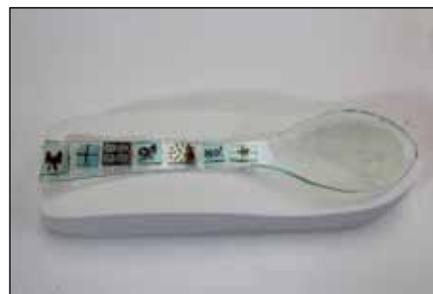


Cut 3-1/2" to 5-1/4" squares out of the Aqua Blue and Ming Green sheet glass and gently place the decorated glass squares on the handle of the spoon.

8  
Put some Liquid White Gold or Platinum into an applicator pen and carefully paint festive designs on each glass square.



9  
Position the spoon on the mold and fire it in the kiln.



Treat the GM188 mold with the ZYP Boron Nitride Mold Release spray as before and place the spoon on the GM188 mold. Use the small lines marked on the top and bottom ends of the mold once again to help center the spoon on the mold.

Fire the glass using the schedule at the end of the tutorial. Now you have two beautiful serving spoons to use during your fall and winter celebrations with family and friends.

## Firing Tips

As with all firing schedules, the temperatures may need to be adjusted to suit the kiln that is being used. Please visit [www.creativeparadiseglass.com/category-s/142.htm](http://www.creativeparadiseglass.com/category-s/142.htm) to see our firing notes for more information about kiln firing variances and kiln testing. Techniques for determining the proper adjustments for kiln schedules can also be found in the Creative Paradise Wisteria Bowl tutorial in the Summer 2016 issue of *Glass Patterns Quarterly*.

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Photo: Ed Pollard

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## Firing Schedule

Segment 1: Ramp 275°F/hr to 1215°F and hold 45 min.

Segment 2: Ramp 50°F/hr to 1250°F and hold 15 min.

Segment 3: Ramp 350°F/hr to 1435°F and hold 5 min.

Segment 4: Ramp 9999 (AFAP\*) to 950°F and hold 60 min.

\*as fast as possible

For information on food safety relating to glass creations used as food bearing surfaces and ways to have these items tested, visit [www.creativeparadiseglass.com/product-p/servingspoontutorial.htm](http://www.creativeparadiseglass.com/product-p/servingspoontutorial.htm).

**GPO**



*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](http://www.creativeparadiseglass.com) for more tutorials and important firing notes.*

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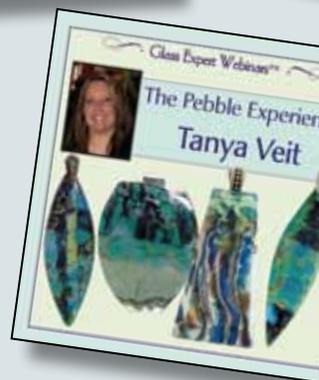
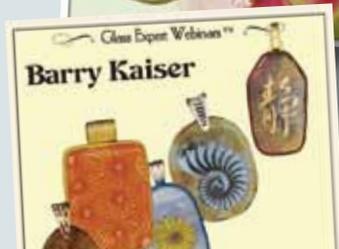
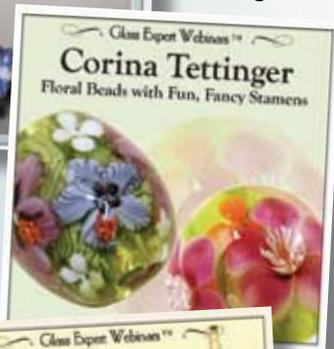
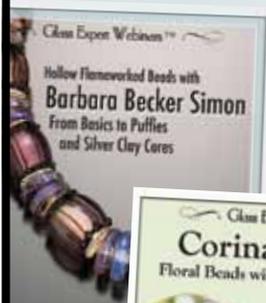
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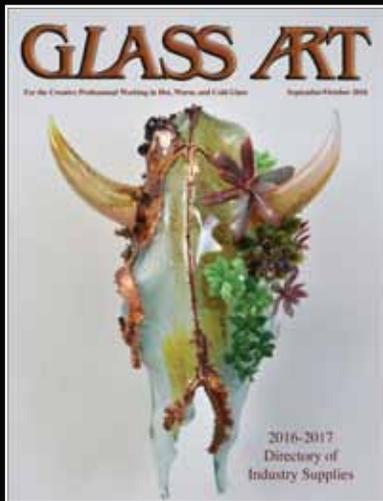
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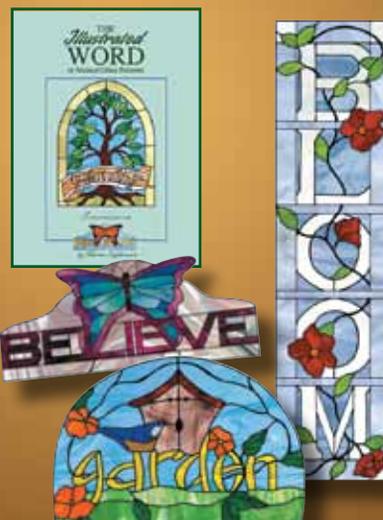


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# Fused Fall Leaves . . . With a Twist

*Design, Fabrication, and Text by Rosalind Stanton*



This is a simple, quick, and fun project designed for glass artists of all abilities. You can follow the steps provided or create your own works of art. The whole idea is to use up colored and clear glass scraps to create saleable, unique, indoor or outdoor glass art.

Use your imagination. Add these leaves to dried branches or turn them into flowers and add them to a trellis. Perhaps you will want to add clusters of fused glass grapes and hang them from a window trim. The project could even be tailored to the winter holidays by adding a poinsettia to the mix. When finished, the project will make an attractive wall hanging or centerpiece. There is no limit to the things you can wrap the copper wire around to create a new twist on glass art.

## Glass

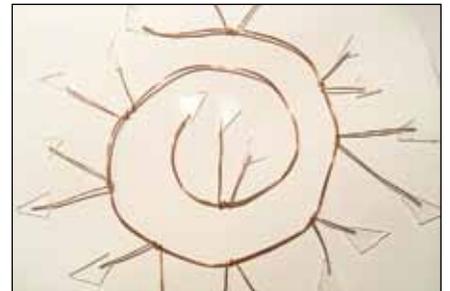
Assorted Colors of Glass, Scrap  
Clear Glass, Scrap  
Assorted Sizes and Colors of Frit

## Tools and Materials

Tile Cutters or Glass Nippers  
2-Gauge 24" Piece of Copper Grounding Wire  
6-Gauge 36" Piece of Copper Grounding Wire  
Metal Branch Wire Cutters Pliers  
Respirator Mask

1

*Curl the 24" length of 2-gauge copper wire.*



Curling the wire will allow you to add the 6-gauge wire and glass pieces for the leaves. The size of the curls will depend on the size of your kiln shelf. We'll look at how this can be done on a small kiln shelf a little later.

Cut the 6-gauge wire for the leaf stems into assorted lengths and twist them onto the 2-gauge vine wire. They can be moved after firing, so you don't have to put them in the exact place you want them at this point.

Nip the clear glass scrap and tuck the pieces under the open ends of the 6-gauge wire. Make sure that the wire is touching the glass.

2

*Layer the nipped pieces of clear and colored glass onto each end of the 6-gauge wire pieces.*



Streaky colored glass scrap works especially well for this fall-leaf theme. Make sure that the wire is encased with glass under and over each end. Use bits of clear and colored glass to layer and attach each piece to the next.

Feel free to design your own style of leaf or flower. The only rule is to make sure that every piece of glass is attached to the next and that the sharp ends have a small piece of clear on top of them so that they don't shrink too much and become sharp.

3  
Using an assortment of different sizes of colored frit, sprinkle a small amount on each leaf.



This could be purchased frit, or you can also make your own frit by nipping the glass scrap with tile nippers. It doesn't matter where the frit pieces end up. They will just add to the random look of the vine. Make sure whenever you are working with glass frit that you wear a respirator mask to prevent the inhalation of any glass particles or dust.

The project is now ready to go into the kiln, but first be sure to double-check these things for each leaf:

- Are all of the ends of wire covered with glass?
- Is each piece of glass attached to at least one other piece of glass on each leaf?
- Do the sharp ends of every piece of glass have a small piece of clear on them?
- Is there frit on the leaves?

4  
Fire the piece.



This is a very simple firing schedule. You are going to take the kiln slightly higher than a tack fuse, since you will want to keep as much detail on each leaf as possible but still have a nice, smooth join on each piece of layered glass. You may have to adjust the times and temperatures in this schedule to suit your own kiln.

#### Firing Schedule

- Segment 1: Ramp 400°F/hr to 1410°F and hold 15 min.  
Segment 2: Kiln off.

When you open the kiln, you will notice lots of flecks of black on the kiln shelf. This is common when firing copper. The impurities in the copper burn off, then stick to the outside of the copper wire. I like the effect that this gives, since it makes the vine look more natural and not so shiny.

As you bend the wire, you will also notice that there is more flaking and that the copper wire has become a lot softer, which is why I use such a thick gauge to start. The heavy 2-gauge copper wire will give great support to the glass leaves, yet it still allows for bending and shaping.

5  
Tighten the leaves on the wire branch.



Before you start to bend the wire vine and leaves in preparation for adding them to the metal display piece, slide them into position on the wire branch and tighten them using a pair of pliers. If you have made additional leaves, this is the time to wrap them around the vine and secure them by crimping them with pliers.

6  
Attach the vine and leaves to the metal display branch.



Decide where you would like to drape the leaves on the metal display branch and attach the vine by bending the wire around and through the various arms of the branch. I chose this metal version, but there are many other options to use for the background piece such as a dried branch, a wooden piece of trellis, a piece of driftwood, or anything that has a shape allowing for draping and attaching the vine. Be creative and make this piece your own. **GPO**

#### Making More Leaves

Even if you have a smaller kiln and don't have room to put a lot of leaves on the vine or you want to make it fuller with additional leaves, there is a way to do that. You can add leaves, flowers, grapes, or whatever you can imagine using exactly the same process as we used in step 2, only without the vine. Use the same firing schedule, and once the leaves are out of the kiln, you can wrap them around the vine, crimp the wrap with pliers, and shape them as you please.



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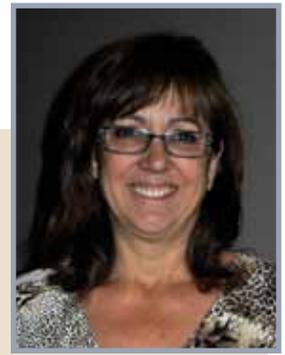
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Rosalind Stanton started her career in glass in 2005 after she attended the Glass Craft & Bead Expo in Las Vegas, Nevada, and realized that she was addicted to glass art. She spends hours in her studio experimenting with powdered, fine, and coarse frit combined with scraps of glass. By layering, tacking, stacking, breaking, and re-fusing, she has pushed the limits of glass fusing.

Rosalind's favorite project is making 21-inch platters, but she had to stop when she ran out of room to stack them. That led to her second addiction—cutting metal stands and glass adornments. Together with her husband John, the welder, they have added another element to her ability to produce glass platters. Now they can be displayed, used, washed, and put back on display as functional and saleable glass art. Check out these metal accessories on their website at [www.displayglassart.com](http://www.displayglassart.com).

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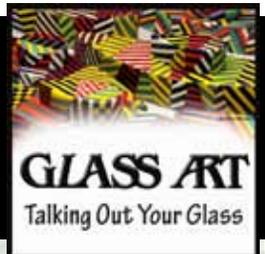
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On the cover of Glass Art magazine's July/August 2016 issue.  
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# Combing Glass

by Dennis Brady

Combing glass is a great way to create beautiful, colorful, striking patterns. Learning to use this technique will add yet another tool to your collection of skills for producing distinctive glass art. It can be a lot of fun and can produce many unique and intriguing effects, but it comes with risks—not just the risk of burning something from the heat escaping from the kiln, but also a risk of damaging the kiln.

Whether it's from opening the lid to crash-cool down to the annealing temperature or to open the lid to comb the molten glass, the thermal shock of cold room temperature air on the hot bricks can damage them. Repeated shocks can cause the bricks to crumble and collapse. To minimize damaging your kiln, minimize the degree of thermal shock.

Before you begin, it's important to make sure you know the best and safest ways to work with combed glass. The following information should give you a good foundation for discovering the enjoyment to be found in combing glass.

## Safety

You will be opening the kiln when it's heated to a very high temperature and reaching in to comb the hot, molten glass. The heat escaping from the kiln can do serious damage. It's important to be sure that the escaping heat doesn't burn anything near the kiln—especially you.

Take special care that there is nothing flammable too close to the kiln and remember to turn off the kiln while combing. Accidentally touching your combing rod to an electrified kiln element will be a shocking experience. You'll also want to be sure that you are wearing good protective gear, including the following items.

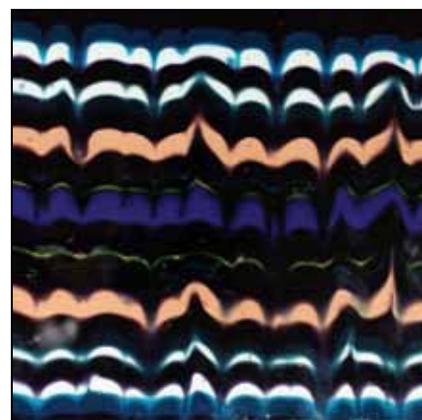
**Zetex gloves.** These gloves are rated to 2000° F. Long ones that come up to your elbows are preferred, but the shorter ones that come just to your wrist will be enough if you're careful. Regular welding gloves are not good enough for other than extremely short kiln openings and only if you remain at least three feet away from the kiln.

**Heat resistant jacket or leather welder's apron.** A fully fire-proof jacket like the ones firefighters have will allow you to work close, but such jackets are expensive. Flameproof welder's jackets are relatively inexpensive and will allow you to get close enough to comb while still providing adequate protection. So will a leather welder's apron or jacket.

**Green welder's glasses and face shield.** It's important to wear something to protect your eyes from infrared rays, which can cause *permanent* eye damage. If you choose to use a green plastic face shield instead of goggles, remember that the kiln heat will soften and might even melt it. Number 3 tint is plenty of protection. Darker than that makes it needlessly hard to see. If you have didymium glasses for torchworking, they work well to remove the glare from the molten glass and allow you to more easily see where you have combed. As for the face shield, any kind will help protect your face from the heat, but as already pointed out, remember that plastic can melt.



*Combed with firm full pressure*



*Combed with light pressure*

**Cotton or wool clothing.** Do *not* wear anything synthetic. It can melt and stick to your skin. There are no “special” prizes for glass artists with scar tissue from melting their shirts to their arms. Always cover your exposed neck as well—either with a buttoned up collar or a cotton scarf.

**Long tools.** The longer the tools you use to comb the molten glass, the farther you are from the heat, so there is less risk of getting burned.

**Hair.** If you have long hair, tie it back. (If you want it trimmed, go to a barber instead of catching it on fire.) Also, the smell of burning hair can be a bit distracting while you're busy trying to comb a beautiful pattern in the glass.

**Be quick.** The best safety precaution when combing hot glass in a kiln is to work quickly. Resist the urge to do “just one more comb.” Open the kiln, do a couple of passes, and close the kiln. Come back later to do more. The longer the kiln is open, the greater the possibility you will burn something.

## Kiln Types and Optimal Locations

You can use almost any kind of kiln to comb glass, but most glass artisans prefer either a clamshell or front loading kiln. When you open the kiln to comb the glass, a lot of heat escapes. A lot more will escape from a top loading kiln than from a clamshell or front loading kiln. Not only will the escaping heat cause the glass to cool so quickly that you have extremely little working time to comb. It's also a lot more heat from which you will need to protect yourself. In addition, there is a serious concern that you can damage your kiln lid from combing in a top loading kiln.



Clamshell kiln



Front loading kiln

It's always important to keep your kiln a safe distance from anything flammable, but it becomes especially important if you plan to use your kiln to comb glass. The usual practice of just keeping your kiln 12 inches away from anything flammable might not be safe enough when you open the kiln and a blast of super-hot air comes racing out. The closer you are to the kiln when you open it to comb the glass, the more likely that you'll get burned by the escaping heat. If you can't provide a greater distance, it's a smart idea to install a metal baffle or some kind of fireproof material such as cement board.

The size of your kiln is also an important consideration. The larger the kiln, the more heat comes raging out, so the greater the possibility of getting burned. It's always safest to have an assistant to open and close the kiln for you. If that's not possible, it's a good idea to rig some kind of lift apparatus such as a pulley system that allows you to lift the lid from a distance. With a good pulley system, you can do the job unassisted. It just means you'll have a little less combing time with each opening.

There is no need to fully open the kiln. Just open it enough to reach in and comb the glass. The higher you lift the lid, the faster the glass cools. That means you will have less time to comb the glass before having to close the lid, then reheat the kiln for another pass at combing.

No matter how you plan to open the kiln to comb the glass, it's a good idea to practice a couple of openings before jumping in and doing a comb. Not only is it important that you can open the kiln without getting burned. It's also important that you don't close the kiln so quickly that you let the lid slam down too fast and blast a bunch of kiln lid bits into the molten glass.

## Combing Tools and Techniques

Anything that is made from stainless steel can be used for combing the glass. A wooden dowel extension could be added to a barbecue tool, for example, or you could fabricate something yourself with a stainless steel end. There are also many combing tools made specifically for combing glass. If you have short tools, you'll have to work close to the heat, but longer tools will allow you to work farther away and have less concern for getting burned.

To comb, the tool must be bent into an L shape. If it's bent on an angle slightly out, it's easier to use when pulling the comb. If it's bent on a slight angle in, it's easier to comb while pushing. You might want to have one of each.

Most combs are done by pulling the combing rod slowly straight toward you and pushing it straight away from you. There's no reason, however, why you can't comb on an angle, in wavy curves, or in a combination of lines and curves. Make a W in the glass. Make an S. Whatever you want to try. Experiment with different ways to comb the glass, including different pressures and speeds.

Combing glass is a slow process. You can only do two or three passes with each kiln opening. Then you must wait for the kiln to heat up enough to allow for more passes. It takes a few hours to complete a project.

The overriding design rule that applies to all glass art also applies to combing. *"If you're doing the work, you're also making the rules."* The design can be any color or any configuration you want to try. Most glass artists like to use thin strips of glass, but some interesting effects can be created with entirely different designs. Don't be afraid to experiment, innovate, and invent.

## Stages, Timing, and Temperature Readings

Glass combing is done in stages. You don't just lift the lid, reach in, and comb the design you want. Each time you open the kiln you do a few combs, then close the kiln and let it heat up again to the required temperature before you open it again and do some more combs. Small projects can be completed in only a few stages, while larger projects will take more stages to complete.

When the kiln lid is open, the glass quickly cools and will become so stiff that the combing rod will get stuck in the glass. That could be a disaster. Resist the urge to speed up the job by trying to do too many combs with each opening. Instead, be organized and prepared, since you will have less than a minute to comb during each opening. Plan what you want to do before the kiln opens.

Remember that the thermocouple reads the air temperature at the tip of the thermocouple. That does *not* mean that the glass is that temperature. In a clamshell kiln, the upper chamber is likely to retain heat longer than the open kiln shelf with the glass on it. The glass temperature could also be much less than the reading on the thermocouple. If the thermocouple is below the glass, when the kiln is opened, the glass will cool a *lot* faster than the thermocouple reading.



Combing tools

## Handling the Glass

It makes no difference whether you comb using one or both hands. If you have good enough hand control to get relatively equal combs with either hand, using two hands at the same time will make the project go twice as fast. Combing one hand at a time, however, will produce the same results. It just takes more kiln openings.

The glass is stiff like taffy. It is *not* like drawing a rod through something that is the consistency of oil or water, or even pancake batter. It's sticky and resists being pulled or pushed, so it requires some pressure. Take care, however, to not apply too much pressure.

Pull or push just hard enough to comb into the glass. If you push too deeply or too hard, there's a good chance you will push the project out of position on the kiln shelf or push the combing tool deep enough to pull fiber paper up into the molten glass. It will take a few projects to get comfortable with how much pressure is needed and how different combing pressure and different combing speeds produce different effects.

## Kiln Shelf Choices

You can set the glass right on the kiln shelf or on a piece of ceramic fiber paper. Kiln paper should not be used, since it will not survive the temperatures at which the melts are done.

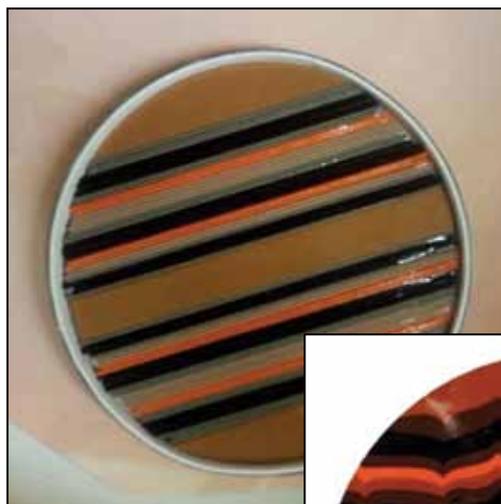
Firing on ceramic fiber paper leaves a pretty rough surface on the underside. You'll get a much smoother finish on the bottom if you place your glass strips on a solid piece of clear iridescent glass with the metallic iridescent side facing down.

**Warning:** A number of glass artisans have reported cracked Corelite kiln shelves from using them for combing projects. It's possible that the combination of the much higher heat to which the kiln is fired for combing combined with the weight of the glass in just a small part of the shelf can cause the shelf to cool significantly faster than the glass. That will create enough thermal shock to crack the kiln shelf. It might be a wise practice to avoid using a kiln shelf that is too much larger than the project that is placed on it.

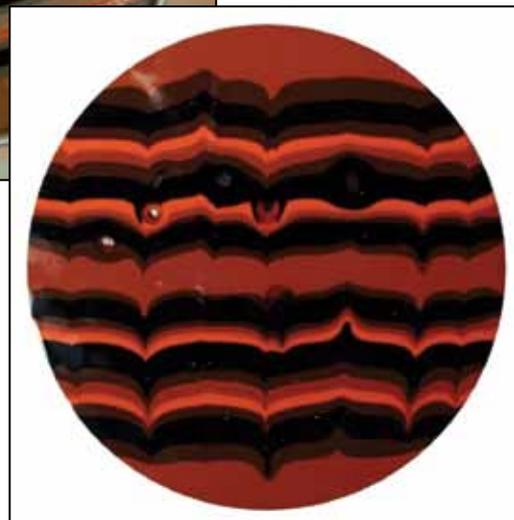
## Glass Thickness and Position

You want to be sure the glass is thick enough so that you don't accidentally poke right through it. Combs are usually done on glass that is at least 9 mm thick, but thicker is even better. The most popular way to achieve this is to use a solid layer of 3 mm clear as a base, then place either two layers of 3 mm glass on top or place strips of 3 mm x 6 mm glass on edge on the base. How you set out the glass ready to comb doesn't matter as long as you can fuse it all together without trapping any air bubbles.

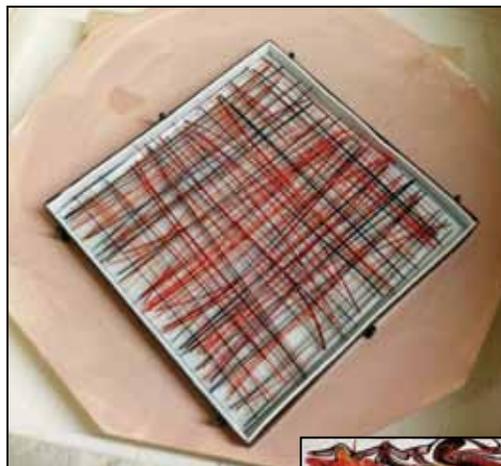
If you're working with a front loading or clamshell kiln, you might think that placing the glass to be combed in the front of the kiln instead of the middle or rear will make it easier to comb. You're right. It will—but it will also cause the front of the glass to cool and stiffen more quickly than the rear of the glass and make it much more difficult to get smooth, even combs.



*3 mm clear glass with  
3 mm x 6 mm strips on top*



*Lightly combed*



*3 layers of 3 mm  
clear with stringers  
on top*



*Cross combed (north-south and east-west)*

## Alternative Schedules for Firing the Glass

Firing on ceramic fiber paper allows air to be pushed out beneath the glass, which significantly reduces the likelihood that air bubbles might be trapped beneath the glass. At the combing temperature, any such bubbles are almost certain to blow glass domes through the glass. If you fire on the kiln shelf without fiber paper, however, and your kiln shelf has even the smallest dip, you risk getting air bubbles.

Open the kiln anywhere between 1650°F and 1700°F. If you open the kiln at too low a temperature, it will cool so quickly that you'll have extremely limited combing time. There will also be the risk of having the glass stiffen so quickly that the combing tool gets stuck in the glass.

Every time you close the kiln after combing, the kiln will continue heating up to 1700°F. When you are finished combing, you can leave the glass to soak for the rest of the hold time or do a "skip step" on the controller to jump to Segment 3 and cool to anneal.

### Firing Schedule with Skip Step

- Segment 1: Ramp 300°F/hr to 1000°F and hold 20 min.
- Segment 2: Ramp 9999 (AFAP\*) to 1700°F and hold 60 min.
- Segment 3: Ramp 9999 (AFAP\*) to 960°F and hold 90 min.
- Segment 4: Ramp 100°F/hr to 800°F and hold 0 min.
- Segment 5: Ramp 300°F/hr to 300°F and hold 0 min.

\*as fast as possible

The following schedule is an alternative one that allows you to not use a skip step, but it requires that you work very quickly and not allow the temperature to drop too far below 1600°F. This method requires that you always open the kiln before the temperature reaches 1700°F to ensure that it doesn't switch to the hold time. The risk with this schedule is that if you have allowed the kiln to cool too much, it will be unable to regenerate heat quickly enough to prevent the controller from issuing an error message and turning off.

### Firing Schedule without Skip Step

- Segment 1: Ramp 300°F/hr to 1000°F and hold 20 min.
- Segment 2: Ramp 9999 (AFAP\*) to 1700°F and hold 5 min.
- Segment 3: Ramp 9999 (AFAP\*) to 960°F and hold 90 min.
- Segment 4: Ramp 100°F/hr to 800°F and hold 0 min.
- Segment 5: Ramp 300°F/hr to 300°F and hold 0 min.

\*as fast as possible in next line

Do a few combing passes and close the kiln. The kiln controller will continue in Segment 2, increasing the temperature to 1700°F. When you have finished all the combing you want to do, just let the controller finish the programmed schedule.



*Collapsed kiln lid caused by thermal shock*



*Starting the comb*

## Reviewing the Essentials

Before you begin on your glass combing adventures, remind yourself of the following to ensure success in the process.

**Practice opening and closing the kiln lid a few times before beginning to comb the glass.** This will help reduce the chance of damaging the lid due to thermal shock or closing the lid down too quickly.

**Be prepared to start combing as soon as the kiln opens.** Plan your combing pattern before you start. The glass surface starts to stiffen immediately, so any hesitation loses combing time.

**Once you start, don't stop.** Keep going at a smooth, steady speed with a consistent pressure—the same kind of speed and pressure control you use to score glass. If you comb too slowly, you will lose too much heat between each opening. If you comb too quickly, you will risk getting uneven-depth combs.

**Use an even, consistent pressure.** Press too hard, and you risk pushing through the glass and pulling fiber paper up into the glass. Press too gently, and you will get a lot less pattern. Change speed or pressure during a comb, and you will create a distorted pattern.

**Don't be tempted to try just one more comb before reheating.** If you try to get too many combs at one time, you risk the combing tool sticking in the glass.

**Hold the combing rod the way you would hold a pool cue.** It's not easy to keep the rod steady and get a smooth speed and even pressure pushing through the sticky glass. It will help a lot if you slide your combing tool along one hand the same way you would a cue stick when playing pool.

**Cool the tool.** After each comb, dip the combing tool in water and wipe it dry. The metal absorbs heat, and hot metal sticks to glass. If the metal combing tool hasn't thoroughly cooled from the previous combing, the likelihood that it will stick to the molten glass is increased.

**GPO**

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Dennis Brady has been a full-time professional glass artisan since 1980 and currently works with stained glass, fusing, casting, glassblowing, and sandblasting. He has authored



and published six books of stained glass patterns plus A Lazy Man's Guide to Stained Glass. Along with his sons, Dane and Jason Brady, he operates several companies. DeBrady Glassworks produces glass art; Victorian Art Glass sells tools, equipment, and supplies; and Master Artisan Products manufactures molds and tools for glass artisans. He has also created the website Glass Campus, which offers over 100 tutorials and videos teaching numerous glass art techniques as well as tips on how to make a living as a glass artisan.

Dennis teaches extensively in his home studio in Victoria, British Columbia, Canada, and as a guest instructor in several other countries. He is also a contributing artist to GPQ's live and recorded Glass Expert Webinars™ and Master Glass Artisan Lecture Series™. His "push the boundaries" approach to experimentation and innovation is always, "How fast can I go until I skid into the ditch?" Visit [www.debrady.com](http://www.debrady.com) to learn more about Dennis and his art.

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# Festive Lights Bowl with Cast Foot

Design, Fabrication, and Text by Randy and Carole Wardell

This refreshing fused glass form gives you the opportunity to experiment with variegated colors of frit to create the bulb design. As shown here, a collection of colors creates the whimsy of the season with a modern flair. Create your own color scheme with colors that you have on hand or incorporate the traditional holiday colors of red and green. Have fun with it.

The colorful light bulbs and holly leaves were created using a process that I call Petrofrit Stenciling. The wire for the lights was made using Vitrigel (or Liquid Stringer) mixed with powdered frit in a squeeze bottle. *Always wear a respirator mask anytime you are working with frit or powdered glass.*

The foot was cast using clear and white scrap shards, then attached during slumping in the amazing BinaSphere mold. The finished project is 11-1/4" x 2-1/4" and will require three kiln firings in total for casting the foot disk, flat-fusing the object design, and forming the dish in a slumping mold.

The BinaSphere Mold (pronounced by-nah-sphere), which measures 12-3/4" in diameter and 4-3/4" high, is an innovative mold that enables fusers to cast a glass foot disk, then slump a prefused design to shape either the bowl or the platter. At the same time, the cast glass foot will be attached by fusing it to the underside.



## 96 or 90 COE Glass

Transparent Green Cathedral for Base, 13" square or 12" disk

White Opal for Base, 12" square or 11-1/4" disk

Fusible Clear and White Glass Mosaic-Size Pieces, Scrap

Powdered Frit for Bulbs and Leaves in Assorted Colors

Dark Green Opal Powder for Wires

Black, Gray, and Dark Green Contrasting Frit Colors for Bulb Bottoms

Dark Green or Black Spaghetti Stringers

## Tools and Materials

S205 Wardell BinaSphere Mold

Laser Printer Household Iron

Photocopy Paper Respirator Mask

X-Acto® or Other Sharp Craft Knife

Small Paintbrush 1/8" Fiber Paper

ThinFire or Papyrus Thin Resist Shelf Paper

White Craft Glue Fuser's Glue

ZYP Boron Nitride Lubricat® Mold Release Spray

Dark Green Vitrigel or Liquid Stringer Medium

Mosaic Nippers Terry Cloth Towel

One side of the mold produces a true spherical-shaped bowl with a cookie-style foot that is similar to vessels made by glassblowers. The opposite side of the mold produces a flat serving platter with a delicately upturned rim that is elevated 5/8" on a cast glass foot.

For firing the BinaSphere Mold, the kiln's firing chamber depth must have a clearance of at least 6" from the floor to the underside of the lid or elements, and the diameter must be a minimum of 14" to provide at least a 1/2" clearance from the kiln walls. To maximize the clearance between the top of the mold and the lid of the kiln, you may need to place the mold directly on the kiln floor.



## Preparing the Design Elements

The Petrofrit Stencil is made using 1/8" fiber paper. It's almost impossible to trace a design onto fiber paper, so the best way to transfer the design is to print it using a laser printer or a standard photocopier. A design printed using an inkjet printer will not work for this process. Then use an ordinary household iron to heat the design on the photocopy paper and transfer it to the fiber paper.

1

*Transfer the design onto the fiber paper with a hot iron.*



Turn the design copy, printed side down, onto the smoother side of the fiber paper. Using the highest setting on the iron, heat the paper, moving the iron constantly, until the design ink has transferred to the fiber paper. Check periodically by lifting a corner of the design paper to see how well the ink is transferring.

2

*Cut out the fiber paper stencils with an X-Acto or other sharp craft knife.*



When you have all of the stencil designs transferred to the fiber paper, use a sharp craft knife to cut around the design lines until you have created the fiber paper stencils.

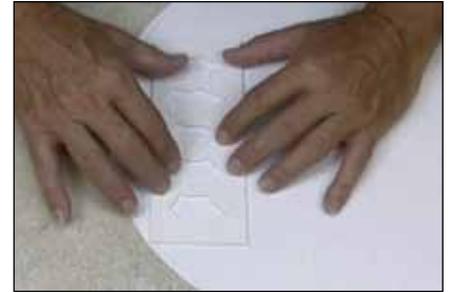
3

*Carefully cut around all of the lines, then push the core design out of the stencil background.*



4

*Use white craft glue to attach the stencils to a sheet of ThinFire or Papyrus thin resist shelf paper.*



Run a bead of glue all the way around the perimeter of each cutout shape to ensure that the edges are firmly sealed to the thin resist shelf paper. This will prevent the powdered frit from creeping under the fiber stencil.

5

*Coat the inside edges of the stencil designs with the ZYP Lubricat.*



This next step is optional, but I find it really helpful to spray some ZYP Boron Nitride Lubricat onto the inside edges of the stencil designs. This greatly reduces spiking on the edges of the fired component pieces. **Be sure to wear a respirator mask whenever you're spraying the ZYP BN Lubricat.**

6

*Give the glue and the ZYP Lubricat some time to dry, then fill the stencil cavities with powdered frit.*



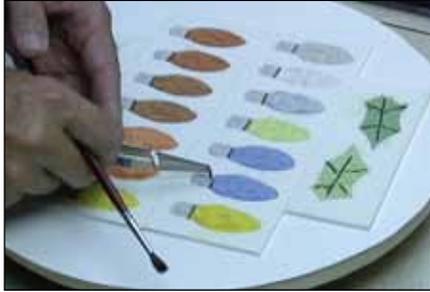
It's best to use opal powers, because opal colors show up better against most background colors. I use a small measuring spoon (1/8 teaspoon) to place a pile of the powder inside each stencil space.

7  
 With a small artist's brush, spread the frit around inside the stencil cavities and sweep it off the surface of the fiber stencil.



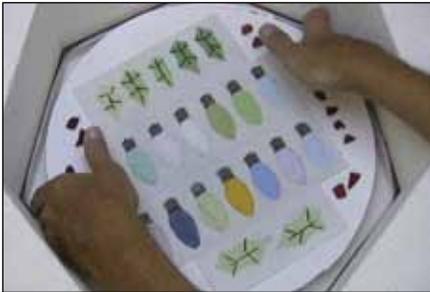
The frit needs to be level with the top surface of the stencil, making it 1/8" thick. Use the bulb color, then fill in with black or gray for the bottom of the bulb.

8  
 Use some short pieces of Black spaghetti stringer to define the colored tops of the bulbs from the lower electrical holder section.



Do the same for the holly leaves to delineate the stem and ribs.

9  
 Place the kiln shelf with the filled Petrofrit stencils into the kiln and fire.



I used the following schedule. However, all kilns fire differently, so you may need to adjust the schedule to fit your own particular kiln on this and the other two later firing schedules.

#### Petrofrit Development Schedule

Segment 1: Ramp 900°F/hr to 1355°F and hold 5 min.

Segment 2: Ramp 9999 (AFAP\*) to 950°F (or 900°F) and hold 30 min.

Segment 3: Power off and allow to cool to room temperature.

\*as fast as possible

When the kiln has cooled to room temperature, remove the kiln shelf and take it to your workbench.

10  
 Gently lift each of the fiber paper stencils, leaving the Petrofrit components on the kiln shelf.



This should be easy, provided that you sprayed ZYP BN Lubricat on the inside edges of the stencil. If you are careful, you will be able to use the fiber stencils at least one more time to create more components.

11  
 Smooth any spikes that are on the edges of the components.



Even though we used ZYP BN Lubricat, you will still find some spikes around the edges of each component. However, these spikes are not as severe as they would be had we not used the ZYP. A quick edge grinding is all that is required to smooth those edges sufficiently.

12  
 Clean the Petrofrit components to remove all traces of fiber paper and ZYP residue.



I like to use a kitchen strainer and a 2" paintbrush to swish the components around in the cleaning solution. Pat them dry on a terry cloth towel.

13  
 Cut two circles to create the design base.



The first circle will be a 12"-diameter Transparent Green, and the second circle will be an 11-1/4"-diameter White Opal.

14  
 Stack the two circles on the prepared kiln shelf and use a little fuser's glue to tack them together.



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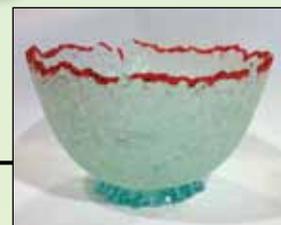
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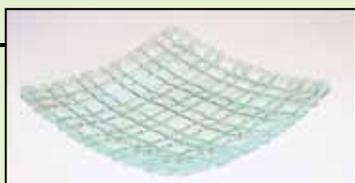
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15  
*Arrange the Petrofrit bulb components in a circle near the outer edge of the White Opal disk.*



Turn them slightly at random angles, similar to the way real festive lights come to rest at all different angles.

16  
*Position 3 holly leaves, or 5 if you prefer, in the center of the White Opal disk.*



Tack everything down with fuser's glue. Set the design assembly aside and allow the glue some time to set up.

17  
*Add the wire for the festive lights.*



Use either Liquid Stringer Medium or Vitrigel Glass Medium in a small squeeze bottle for this process. I used a Dark Green Opal powder mixed with the stringer medium to create the wire. Draw the wire freehand, allowing it to twist and wander to give it a more lifelike appearance.

18  
*Drop in a few bright red berries to accentuate the holly leaves using the same squeeze bottle technique.*



19  
*Carefully place the kiln shelf with the design assembly into the kiln, close the lid, and fire.*



#### Contour Fuse Schedule

Segment 1: Ramp 300°F/hr to 1150°F and hold 30 min.  
Segment 2: Ramp 300°F/hr to 1370°F and hold 10 min.  
Segment 3: Ramp 9999 (AFAP\*) to 950°F (or 900°F) and hold 90 min.  
Segment 4: Ramp 125°F/hr to 200°F and power off.  
\*as fast as possible

#### Mold-Forming the Bowl

You could form this design on virtually any 12"-diameter bowl or plate mold that you have. However, the bowl shown in the photograph at the beginning of this article has a cast foot attached to the bottom. It was created using the BinaSphere Mold. The BinaSphere comes with an instructional booklet and access to a how-to video via Internet streaming that explains in detail how to cast a foot and fuse it to the bowl during the slump firing.

20  
*Prepare the BinaSphere Mold with 2 coats of ZYP BN Lubricant.*



21  
*Fill the casting reservoir in the BinaSphere Mold with shards of white and clear scrap glass.*



The basic process is to use a pair of mosaic nippers to make 265 grams of glass shards that are 1/4" to 3/4" mosaic-size pieces. Place the BinaSphere Mold in the kiln directly on the kiln floor and fill the casting reservoir with the pre-weighed shards, piling them so they stack up in the center and are fully contained within the casting reservoir. Close the kiln lid and set the controller to the following schedule.

## Scrap Casting Schedule

Segment 1: Ramp 300°F/hr to 1250°F and hold 30 min.  
Segment 2: Ramp 300°F/hr to 1430°F and hold 60 min.  
Segment 3: Ramp 9999 (AFAP\*) to 950°F (or 900°F) and hold 60 min.  
Segment 4: Ramp 100°F/hr to 600°F and power off.  
\*as fast as possible

## Slump-Forming the Bowl

Dry brush the inside of the BinaSphere Mold to remove the loose ZYPLubricant powder. **Be sure to wear a dust mask when cleaning or applying the mold release.** Spray-coat the entire interior surface of the mold with the ZYP mold release.

# 22

Place the mold in the kiln, then carefully return the cast glass foot disk back into the casting reservoir.



# 23

Position the festive lights design disk on the top ledge of the BinaSphere mold.



Make sure the disk is centered an equal distance from the edge all the way around the mold. **This is a critical step.** Close the kiln lid and set the kiln controller to the following schedule.

## BinaSphere Forming Schedule

Segment 1: Ramp 50°F/hr to 500°F and hold 10 min.  
Segment 2: Ramp 200°F/hr to 1150°F and hold 30 min.  
Segment 3: Ramp 600°F/hr to 1270°F and hold 10 min.  
Segment 4: Ramp 9999 (AFAP\*) to 950°F (or 900°F) and hold 120 min.  
Segment 5: Ramp 125°F/hr to 200°F and power off.  
\*as fast as possible

It is very important to follow the recommended initial ramp speed of 50°F per hour and the secondary ramp speed of 200°F per hour. This slow-heat speed is essential to maintain a balanced temperature between the fused glass disk and the ceramic mold. Ramping any faster runs a very real risk of thermal-shocking your design disk. After all the work and material you have put into your creation, it's not worth the risk to save a few hours of firing time.

# 24

After the slump firing is complete, open the kiln after cooldown to admire your masterpiece.



Note: Do not try to remove the bowl from the mold while it is still in the kiln.

# 25

Remove the mold from the kiln before removing the bowl from the mold.



Take the mold out of the kiln with the bowl still in it and place it on your workbench. Place one hand on the glass bowl to steady it, then tilt the mold up and over until the bowl slides gently out of the mold. The festive lights will be slightly raised giving the bowl a 3-D look and feel, while the Dark Green rim edge is similar to an effect that glassblowers call a lip wrap. **GPO**

Randy Wardell has been in the art glass industry for more than thirty-five years and has done it all, from teaching to retail supplies and a custom glass studio all the way to managing a major glass wholesale warehouse. In 1983 he founded Wardell Publications Inc to produce instruction and pattern books for the glass craft industry. Randy is the author of twelve books, and his company has created and released more than fifty published products into the market. He is a writer, editor, teacher, and frequent contributor to art glass magazines and informational websites.

Carole Wardell's introduction to stained glass was from a local retail supply store in 1979. She especially liked the appearance and workability of lead came, and it became the preferred technique for her designs. She founded Glass Reflections in 1986, initially to make fused glass jewelry, but she expanded the business to include custom entryways, architectural windows, and ecclesiastical installations. Carole has authored two books featuring her work, Windows of Elegance I and II. She also assists at Wardell Publications with book layout and production, participates at stained glass trade shows and distributor events, and is a lecturer and instructor. She still loves to get in the studio. You can see her latest fused glass projects created with husband Randy in their newest book, Joy of Fusing.

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# Kiln Corner

## How to Choose a Kiln

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.*

### **I**s there anything in particular I should check before ordering a kiln?

Make sure the kiln will fit through all of the necessary doorways to reach the kiln room. Ask your dealer for the kiln's exterior width. Some catalogs include doorway clearance for each kiln.

### **I** am considering buying my first electric kiln. The choices and information seem overwhelming. What are your suggestions of things to consider when choosing a kiln?

Choosing a kiln becomes simpler when you narrow the search to these criteria:

- **The size of the electric circuit in your studio.** Your kiln choice will be limited by the number of amps available.
- **The size of the kiln.** Estimate how much firing chamber space you need.
- **Front loading or top loading.** Top-loading kilns cost less per cubic foot than front-loading kilns. However, if you need to open the kiln at fusing temperatures for glass raking or embossing, get a front-loading kiln.
- **Firing temperature.** Determine whether the kiln you are considering can handle the temperatures at which you normally require for firing your projects.

### **I** need a small kiln that will have to be moved frequently. Do you recommend a ceramic fiber or firebrick kiln? I've read that moving a brick kiln could damage the elements and bricks.

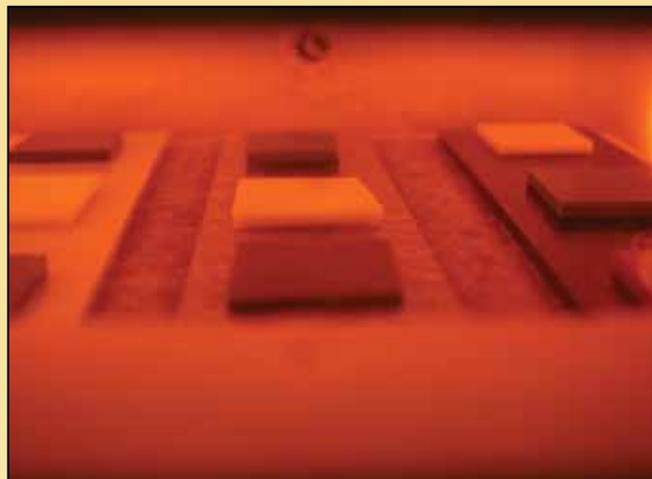
Since you are going to move the kiln frequently, I would choose a ceramic fiber kiln. This is because they are lighter than firebrick kilns. The fiber kilns also cool down more rapidly than the firebrick ones, so you would have to wait longer before moving a firebrick kiln.

You can frequently move a small, tabletop firebrick kiln without damaging it, though. Whether you get a small fiber or firebrick kiln, save the carton and foam packing that the kiln was shipped in. The packing is designed to protect the kiln during UPS shipment, which can be pretty rough. Be sure to place a sheet of foam packing material between the kiln body and door whenever you move a kiln.

### **Can glass be fired in an enameling kiln that has sidewall elements?**

Yes. Unless the kiln has door elements, the side toward the door will be slightly cooler than the other three sides, but you can compensate for that by placing items that require a lower temperature near the door.

**GPQ**



*A glass window is optional on many kilns. This window enables you to conveniently monitor the glass as the firing progresses.*



*Kilns are insulated with either ceramic fiber or insulating firebricks. Ceramic fiber heats and cools more rapidly than firebricks, while a firebrick kiln is more suitable for long annealing times.*

*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](mailto:ahoward@paragonweb.com) with questions for future columns. Sign up for his kiln newsletter at [www.paragonweb.com](http://www.paragonweb.com).*

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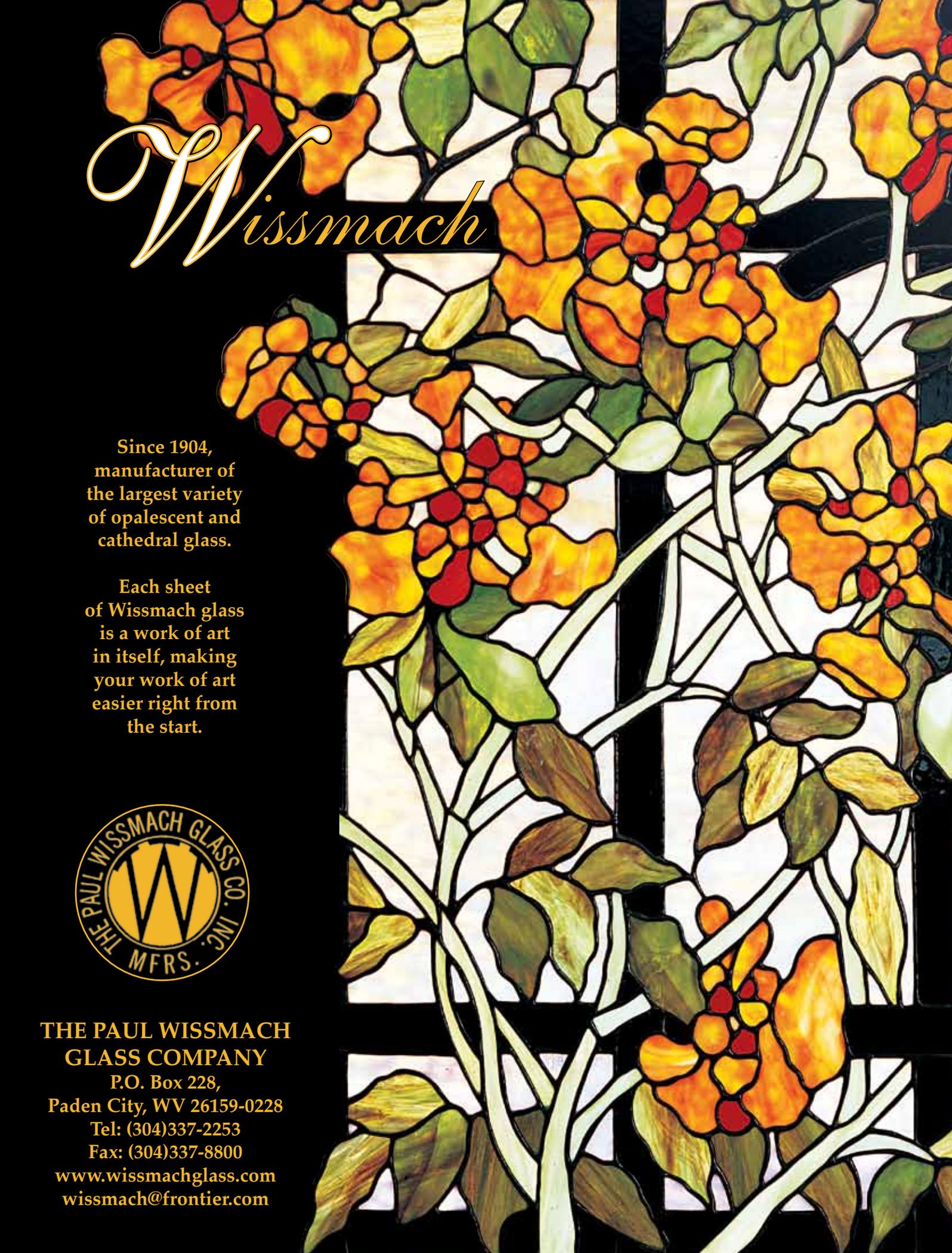
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