

# GLASS PATTERNS

— • Q U A R T E R L Y • —

Spring 2018

Volume 34 • No. 1

## Glass in the Garden Issue

### Stained Glass

Spring Birds  
Magnolia Panel  
White Leaves

### Fused Glass

Forest Cross  
Pot Melt Buddha  
Spring Stamps  
Hummingbird  
Garden Stake  
Glass Sugar Egg  
Fused Fountain  
Mrs. LizArt



**DON'T MISS Our 16-Page Pattern Sheet**

Volume 34 No. 1

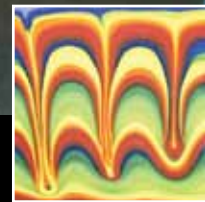
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www.GlassPatterns.com

# Pro Series

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



## The Artist

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

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

## Combing

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

[www.glasskilns.com/proseries/combing](http://www.glasskilns.com/proseries/combing)



## The Kiln

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

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



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## From the Editor

### A Time for Growth

The annual "Glass in the Garden" issue is one of my favorites, because the *Glass Patterns Quarterly* contributing artists give themselves permission to experiment and interpret their ideas inspired by the outdoors. Glass is a sturdy property, and if cared for correctly, it can hold up quite well in gardens and outdoor venues across the globe. That is why we are proud to offer you, our readers, a variety of ways to grow your own glass techniques.

With the popularity of glass fusing, we find ourselves able to create 3-D vessels in a weekend. In this issue alone we show you how to make decorative outdoor items from sculptures to fountains. The continuing growth of glass art techniques helps our contributing artists look at their own art through different lenses and push their ideas in order to come up with the concise tutorials we feature in each issue.

*GPQ* takes pride in finding quality projects from world-renowned instructors. You will see many of our contributors' names as instructors at the Glass Craft & Bead Expo coming up in April 2018 in Las Vegas. At *GPQ*, we love it when an instructor's tutorial, class, and Webinar all come together. This is where the opportunity for growth where the author/reader become instructor/student.

*Glass Patterns Quarterly* has been bringing you quality tutorials for over 30 years. As one of only a few glass print publications on the market, we have continued to adapt to the ups and downs experienced by the glass market by embracing new technology to offer digital copies, CDs, and Glass Expert Webinars™. However, we also want to keep bringing the colorful pages to you in print, because we know that glass artists are very tactile, visually oriented people who want to bring a copy of the magazine into their workshops and leaf through the pages while they are working. All of this takes great effort on our part by keeping all of the editorial, advertising, and publishing balls in the air, just like a juggler. Of course, none of this would be possible without our supportive advertisers that you see sprinkled throughout the pages. The advertisers offset the costs of producing this publication. Please support them whenever possible.

We hope that you will look at ways to grow your own skills, design ideas, and products. Hopefully, the rebirth of spring will inspire you to keep creating. Most importantly, *GPQ* hopes that it can help.

Happy glassing,

*Delynn Ellis*

Delynn Ellis

Managing Editor



*Glass Cast Lizard by Petra Kaiser*

#### Upcoming Submission Deadlines

##### Fall 2018

Editorial

Ad Closing

Ad Materials

*Autumn, Halloween, Christmas, and Holiday Ornaments*

May 20, 2018

July 20, 2018

July 30, 2018

##### Winter 2018

Editorial

Ad Closing

Ad Materials

*Wildlife, Winter, and Landscapes*

August 20, 2018

October 20, 2018

October 30, 2018

# Glass Patterns Quarterly

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(Above) Spring Fairy by Mary Harris.

On the Cover: Hummingbirds by Alysa Phiel. Photo by Jane McClarren. Details of Round Magnolia Panel by David Kennedy, Forest Spring Cross by Kelley Mc Hugh, and the fused version of Spring Fairy by Mary Harris. Kennedy Photo by Sharon Kennedy.

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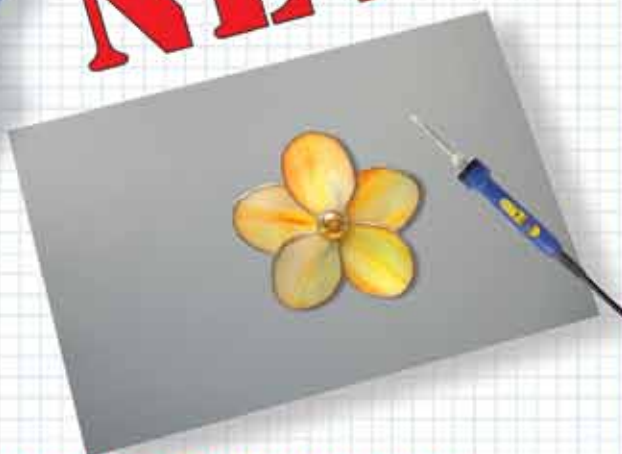
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For more information, including tips and accessories, visit [HakkoStainedGlass.com](http://HakkoStainedGlass.com)

# Round Magnolia Panel

*Design, Demonstration, and Text by David Kennedy*

Photography by Sharon Kennedy



There is nothing like the sight of a magnolia tree in full bloom to lift one's spirit. The warm pinks against a cool blue sky really capture the early spring light. I have tried to recreate that feel here by using a Plum White with a Sky Blue and Light Amber background glass, giving an almost oriental feel to the panel.

### Wissmach Glass Company

166-D Sky Blue/Light Amber/Dense Opal/Crystal for Background, 1-1/2 Sq. Ft.

142-D Dense Opal/Light Purple for Flowers and Flower Stems, 1 Sq. Ft.  
223-LL Light Amber/Dark Brown Streaky for Branches, Scrap

57-D Medium Green/Dense Opal/Crystal for Leaves, Scrap

### Tools and Materials

7/32" Copper Foil 3/16" Copper Foil

7/32" Black-Backed Copper Foil

Burnishing Tool Carpenter Square

50/50 Solder 60/40 Solder

4 x 4 C- or U-Channel Lead Came

3/4" Grinding Bit Water Soluble Flux

Tinned Copper Wire 0.5 mm Hanging Chain

Band Saw Fine-Tipped Permanent Marker Pen

Small Paintbrush Stiff Brush

Dish Detergent Black Patina

*Make two copies of the pattern, one for using as a template and one for cutting out the glass pieces.*

1



*Mark the background pattern pieces to show how they will be placed on the glass grain.*

2



The background glass I am using has a grain in it, so using a square and a pencil, I have marked straight lines on the background pattern pieces. This will ensure everything lines up when the panel is complete. I will be attaching hooks where I have marked the Xs.

3

*Prepare a jig for building the panel.*



My jig is approximately 15-1/4" in diameter. The circular frame, which can be used again and again, is cut from a piece of 5 mm plywood board with a router. The finished panel will be hung in a window, and the jig will produce a nice, neat finish.

*Mark and cut out the magnolia petals marked F on the pattern using the Dense Opal/Light Purple.*

4



Place the petals in the jig as you proceed.

5

*With all the flower petals cut, add the pieces marked FS 1, FS 2, FS 3, and FS 5 on the pattern.*



I have used the darkest piece of scrap from the Plum White Opal for these.

6

*Cut out and add the leaves and branches.*



7

*Place all of the pattern pieces for the background on the Sky Blue/Light Amber Opal.*



Make sure that the pencil lines run with the grain of the glass and that you have adequate glass to complete the panel. Mark them out with the permanent marker pen.

8

*Cut out the background pieces using the band saw.*



9

*Fit the background pieces into the jig, making any necessary adjustments as you proceed.*



10

*Once all the pieces are cut, begin to foil them.*



Remove the pieces from the template one at a time, apply the foil, and replace in the jig. Make any necessary adjustments as you proceed. There is no need to foil the outside edge, since the lead came will cover that.

11

*Make sure the foil is well burnished onto the glass edges.*



I find that a putty knife is excellent for this procedure.

12

*Replace the burnished glass pieces in the jig and make any adjustments as needed.*



13

*When all of the pieces have been foiled, apply flux to the seams and solder them flat using 50/50 solder.*



Remove the panel from the jig and repeat the fluxing and soldering process on the reverse side.

14

*Frame the panel with C- or U-channel lead came.*



Stretch a length of C- or U-channel lead came and cut a length approximately 48" long for a 15-1/4"-diameter panel. This can be eased around the outside edge to provide a nice, neat finish.

15

*Complete the soldering.*



Reapply flux to the seams and bead-solder the panel on both sides using 60/40 solder. Once all of the soldering is complete, clean the panel using a tiny amount of dish detergent and warm water. A stiff brush will help to remove all of the flux and solder residues.

16

*Using a small paintbrush, apply patina to the seams.*



Leave the patina on for a couple of hours, then give the panel a final cleaning and polishing. The completed panel can now be hung in a window of your choice.

**GPO**

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

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



## NEW! CABOCHON SNAP & SWITCH



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AANP-02

AANP-13

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### Bracelets

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AANP-09

AANP-14

### Ring

AANP-10

### Pendant (without chain)

AANP-11

### Earrings

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



### KEY HOLDERS

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B. RKH Round Flat  
C. FKH Flat



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



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### Leaf Bails



- ITEM# **NICKEL PLATED**  
NJBLS Large  
NJBLS Small  
ITEM# **SILVER PLATED**  
SLBLS Large  
SLBLS Medium  
SLBLS Small

### Heart Bails



- ITEM# **GOLD PLATED**  
GJBLS Large  
GJBLS Medium  
GJBLS Small  
ITEM# **.925 SILVER**  
GJBS Large  
GJBS Medium  
GJBS Small

### Earring Bails



- ITEM# **SILVER PLATED**  
SHBLS Large  
SHBLS Medium  
SHBLS Small  
ITEM# **GOLD PLATED**  
GHBLS Large  
GHBLS Medium  
GHBLS Small

### Pattern Bails



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

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- ITEM# **SILVER PLATED**  
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# White Leaves

*Design, Demonstration, and Text by Chantal Paré*

*"Simplicity and repose are the qualities that measure the value of any work of art."  
Frank Lloyd Wright*

Geometry, abstraction, movement, and color all come together in *White Leaves*, a design inspired by classic botanical forms and modern architecture. Giant berries—or flowers, depending on your interpretation—with their bold contrast of cool Cobalt Blue and fiery Red Orange, flow across a framework of thick, curvy palm rachis (stems) from which white, ghost-like leaflets fan out. To avoid distraction from the dramatic lead lines of this 14" x 34" design and to intensify their visual impact, they are set against Wissmach's sober, uniform White Opal for the leaves and the company's formal, streamlined Clear Aerolite.

## **Wissmach Glass Co.**

Aerolite-01 Clear Texture for Background, 4 Sq. Ft.

51-LL White Cast Opal Semitranslucent for Palm Rachis, 2 Sq. Ft.

17-LL White Opal/Red Orange Streaky for Outer Berries, 1 Sq. Ft.

EM 220 Cobalt Blue English Muffle for Berry Centers, 1/2 Sq. Ft.

## **Tools and Materials**

1" U-Came Zinc

3/8" x 5/32" Flat H-Channel Lead Came

3/8" x 1/4" Flat H-Channel Lead Came

Plywood or Other Composite Material

Window Putty 60/40 Solder Gloves

Soldering Flux Masking Tape

Pattern Shears Grinder Miter Saw

Pretinned 14-Gauge Copper Wire

Horseshoe Nails Soft Rubber Mallet

Glass Breaking Pliers Oil Glass Cutter

Plastic Roller Lead Knife or Tin Cutters

Burnishing Brush Window Cleaner

Whiting (Calcium Carbonate)



1

*Make two copies of the pattern and number the pieces on both.*



One copy is for tracing and cutting the glass pieces, while the other is for assembly. Indicate the desired orientation for the striations of the Aerolite glass.

Cut the pieces in the first copy with pattern shears or with ordinary scissors, leaving out about 1 mm between pieces for the heart of the lead came. Do not cut out the wider line that surrounds the pattern, since it serves as a guide for the overhang of the zinc frame.

2

*Lay the pattern pieces on the glass, then trace and number them.*



For the dark blue, use a white or silver marker. Mark over a light table if you have one.

3

*Score inside the marker lines and break the glass.*



4

*Prepare a two-sided wooden jig—the top and one long side—nailed on plywood or other composite material.*



Use a carpenter's square to ensure a perfect angle.

5

*Make the zinc frame.*



Secure the pattern with tape so that the guide at the perimeter of the pattern lies just under the edge of the zinc frame. Cut the U-zinc frame with a miter came saw or a box miter hacksaw and make all four sides at once. Test the height of the zinc channel with a piece of Aerolite. If the fit is too tight, widen the zinc channel with a fid on all four pieces.

6

*Lead the glass pieces and assemble them inside the zinc frame.*



Progressing from the top right toward the bottom left, add the pieces of glass one by one. Push them gently into the groove of the zinc frame when applicable, framing them with cut pieces of lead came. Gently tap the glass pieces into place using a soft mallet.

Always secure the outermost pieces and adjacent lead came with horseshoe nails as you work. Use an electric grinder as needed to ensure proper fit of the glass pieces. The lead pieces should not extend beyond the zinc came channel guideline around the perimeter of the pattern.

7

*Lead the berries or flowers (however you have chosen to interpret the round elements).*



To efficiently lead the berries or flowers, first cut a piece of lead for the perimeter of the circle. Next, wrap the blue center piece in lead and place it in the center. To finish, lead the orange pieces inside and close the circle with the perimeter lead piece.

8

*Create the palm rachis.*



The 3/8" x 1/4" Flat H-channel lead came that makes up the palm rachis requires some bending that tightens and warps the channels, so it will need to be widened and straightened in places. You can use the flat side of the glass breaking pliers to lift up the channel where it has been constricted.

9

*Flatten any ripples in the lead with a plastic roller.*



Bending the 3/8" x 1/4" flat H-channel lead came will cause ripples in the lead. Flatten the ripples with a roller after the lead has been integrated into the project.

10

*Once all of the pieces are leaded, close the left and bottom sides of the zinc frame and secure the zinc came with horseshoe nails.*



11

*Solder the frame joints and add the hanging hooks.*



Using masking tape as resist, solder the lowermost joints to close the frame and tack-solder the uppermost joints. Fold over two 3" lengths of pretinned copper wire to form hooks. Remove all horseshoe nails around the frame, and move the project just enough to access the top of the frame in order to solder the wire hooks along the two uppermost joints.

12

*Flux and solder the panel, front and back.*



Working one joint at a time, brush with flux and solder. Begin with the the lead lines that abut the zinc frame, then solder all of the other joints on the same side. Carefully flip the project over to avoid torsional forces that might crack the glass and solder the reverse side.

13

*With a gloved hand, push the putty under the came to cushion the glass.*



If the putty is not fresh and has lost some of its elasticity, you can use a putty knife instead of a gloved hand. Scrape off any excess putty.

14

*Thoroughly clean the panel.*



Sprinkle some whiting on the project and scrub the panel vigorously with a burnishing brush. Continue until all of the extra putty is cleaned off of the glass and the lead acquires a rich pewter finish. Finally, clean the panel with window cleaner and it's ready to display.

GPQ

*Two decades 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

## Introducing the Paragon CS-5630 clamshell kiln with quartz tubes

### **Deluxe quartz tubes**

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

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

### **Heat from the top, walls, and floor**

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

### **Extra insulation and woven gasket**

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

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

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

### **Motorized vent for firing molds**

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

### **Low maintenance**

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

### **Rugged**

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

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

### **Optional touch screen controller**

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



For more details, please visit our website or call 800-876-4328. We look forward to hearing from you.

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# Spring Birds

## An Introduction to Using a Vinyl Pattern

*Design, Fabrication, and Text by Laura Williams*

It's spring-cleaning time, and what better way to start than doing a small copper foil panel out of nothing but my leftover scrap glass. We all have it, so let's put it to good use. Birds sitting on my window on a rainy spring day was a great way to use up my leftovers, since birds and flowering shrubs can be any colors I want them to be.

I chose to incorporate some different techniques and tools with this pattern. Let me explain why. I am a 25-year survivor/warrior of Lupus. On some days the spirit is willing to create, but the body doesn't always cooperate. The following techniques and tools can help anyone who suffers from any form of disability.

### **Glass**

Scrap Glass in Assorted Colors and Textures

### **Tools and Materials**

Toyo Pencil Grip Cutter

Running Pliers    Taurus 3 Ring Saw

Nippers    Glastar Grinder

100-Watt Soldering Iron

Miter Box and Saw    KWC Table Foiler

Cutting Surface with a 90-Degree Jig

Gel Flux    Cotton Swabs    Spray Adhesive

7/32" and 3/16" Black-Backed Copper Foil

Kwik Crimp Copper Foil Crimper

60/40 Solder    Black Patina    Dish Soap

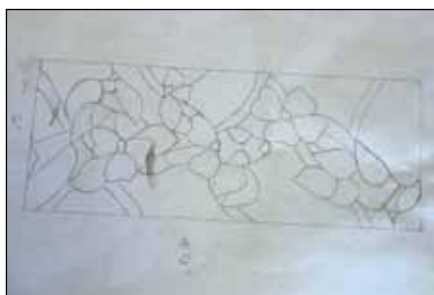
Zinc U-Channel    Rubbing Alcohol

Colored Pencils    14" x 17" White Paper

Small Paintbrush    Soft Cloths

1

*Draw and color in the design for the panel, then send it to the printer to have it done in vinyl.*



For this panel, I looked up different birds on the Internet to figure out which ones I wanted to put in my design. I tend to draw my patterns smaller than I need for building a project, keeping in mind ratios that will be easier to blow up proportionally. For example, if I want the finished piece to be 9" x 15", I would draw it 3" x 5" so that it can be expanded proportionally to three times the size I drew.





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2

*Search through your scrap glass to find pieces that are the right size, color, and texture for building your panel.*



Get out all of your bins of scrap glass to see which colors you have in large enough amounts for the design elements and background. Cardinals and blue jays are some of my favorites, so the scrap I was looking for were the blues, reds, and yellows plus colors to represent the flowers of spring and the blooming trees and shrubs in my yard. I even found some pink to represent the pink dogwoods. I also picked scrap glass that has a texture to suggest feathers, then made sure when putting it in the design that the direction of the textures mimicked that.

I wanted the background to look like rain on a window. Fortunately I tend to use, and therefore have a lot of Clear Raindrop glass as scrap to use for the background. But again, you can use any colors for the background that you choose. The blue of a spring sky would work, for example, or even an iridescent clear so that it would look like a rainbow sky after a spring shower.

*Once the vinyl pattern comes back, number all of the pieces on the building pattern and the corresponding pieces of the vinyl pattern.*

3



Put in directional arrows on the pattern sections for how you want the glass to move/flow in the piece. For more information on the advantages of working with vinyl patterns, see the sidebar at the end of the tutorial.

*Set up the building pattern in a 90-degree jig on your cutting table, clean the glass, and attach the vinyl pattern pieces to the glass.*

4



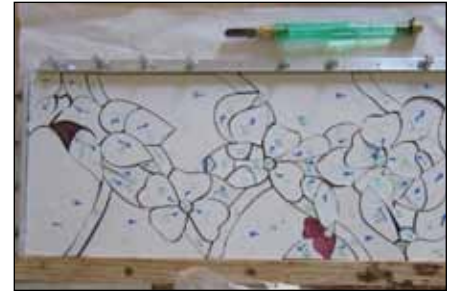
Before you can apply the vinyl pattern pieces to the glass, you will need to thoroughly clean all of the scrap glass with rubbing alcohol. Make sure that they are *really* clean, since they probably have residue left on them from when you used them before in other projects.

Once the glass pieces are dry, attach the vinyl pattern pieces to the glass, taking into consideration the directional arrows. I like to let the vinyl pieces sit on the glass for at least an hour. It seems that the longer the vinyl stays untouched, the better it tends to stick once it gets subjected to water from the saw and grinder.

Cut out the glass pieces using either a hand cutter or a ring saw. There are pros and cons to using either method or a combination of both. On days when both spirit and body are able and willing, I like the ease of using a pencil grip glass cutter, running pliers, nippers, and a grinder. Even on the those days, if I have a tight inside curve or tricky shape, sometimes I get out the ring saw and cut away. On days when the body isn't cooperating, what I call "bad" days, I rely totally on my ring saw, since it cuts and grinds the edges for me in one step. The only downside is the actual set up and breakdown of the machine itself.

5

*Put the vinyl-covered cut glass pieces on the building pattern inside the jig to make sure they all fit and line up.*



Make any necessary adjustments at this time.

6

*Pull the vinyl off of the glass and put the vinyl pieces back in place on the specially backed pattern paper they came on.*



**Hint:** To make sure the vinyl sticks really well for future use, I use a spray adhesive on the back sides of the pieces before putting them back on the waxy paper they came on. Clean all of the surfaces on all the glass pieces with rubbing alcohol and let them dry.

7

*Apply the foil to the glass pieces, crimp and burnish, then replace them inside the jig.*



I usually use 7/16" black-backed copper foil. However, when I have small pieces I use 3/16" black-backed copper foil. That way, more of the glass on the small pieces can be seen.

I like to use a KWC Table Foiler for my regular-to-large glass pieces. It literally takes me half the time to do a piece when using one and applies the foil evenly on both sides of the glass, leaving a slight crimp on the foiled piece. The Table Foiler doesn't work very well with really small shapes or really tight inside curves, however, so you will need to do those the old fashioned way by hand. I don't foil the edges of my outside pieces, because I will be adding a zinc border. That also saves foil.

Now it's time to crimp and burnish the foil. I found that crimping and burnishing my glass pieces was very hard on my fingers—not just my joints but the pads too. I found a small crimping tool that works well and quickly. Its called The Kwik Crimp. This little



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thing saves time, plus there are no more paper/foil cuts on your fingertips! When you're finished with the foiling, put all of the glass pieces back inside the jig, making sure that everything still lines up. Using a small paintbrush, apply gel flux to all the copper foil lines on your design.

8

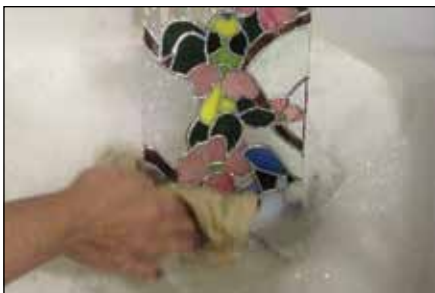
*Solder all of the foil lines.*



I prefer using 60/40-composition solder, because it seems to flow better than 50/50. On the outside pieces, I stop the soldering at least 1/4" away from the edge, since my zinc frame will go there. I do one side, then flip the panel and do the other side. Rather than soldering just the joints on one side then flipping, I do one entire side then the other. Allow time for the project to cool back down before proceeding with the next step.

9

*Wash the completely soldered panel in warm sudsy water using a grease-cutting dish soap and soft cloth.*



Let the piece dry completely.

10

*Cut zinc U-channel pieces to the proper lengths for the frame and attach them to the edges of the panel.*



Cut and measure the zinc frame pieces. I use a miter box to make sure that the zinc is stable. It also helps to make sure that the cut is straight and perpendicular when cutting the zinc with a hacksaw. My husband does this part, since I do not have the strength in my hands to cut the zinc. Apply gel flux to the corners of the frame, then solder the corner joints plus every line from the zinc frame edge out to where you stopped the solder on the edges of the finished project. Wash the piece again as in step 9 and allow it to dry thoroughly.

11

*Apply glass polish to the panel as directed on the bottle and save the polishing cloth.*



12

*Use a cotton swab to apply the black patina on the cleaned and polished solder lines.*



Allow the patina to dry, then give the entire piece a final polish by rubbing it with the soft cloth.

**GPO**

### Some Advantages of Using Vinyl Patterns

There are several different techniques that various glass artists use for transferring pattern pieces onto the glass before cutting. I have found that having my designs transferred to vinyl has some distinct advantages for me and hopefully for you too.

To transfer my original designs to vinyl, I either take my actual drawing to my local glass studio that has the ability to transfer my design onto vinyl, or I scan the design and send it as a JPG attachment in an e-mail. I simply tell them the finished size that I want my piece to be and whether I am doing it in copper foil or lead. Their machine takes that into consideration and puts in the correct spacing between pieces for each type of glasswork when it cuts out the pattern pieces. The charge for this is approximately \$10 per square foot to run the pattern in both vinyl on a specially backed paper plus one pattern to use for building the project. This type of service may be more where you are located or if they have to mail the patterns to you.

Using vinyl patterns saves time by making it possible to bypass blowing up the design, printing two copies, covering it with contact paper, and using foil or lead scissors to cut out each piece. I can also avoid using adhesive to apply the pattern to the glass or tracing the pattern pieces onto the glass using a light box.

The adhesive on the back of the vinyl makes it very easy to keep the pieces in place when working with the pattern. Because vinyl is waterproof, you do not need to do anything to protect the pattern pieces when using a wet ring saw or grinder. The pieces also stay on the glass until you remove them to clean the glass pieces when you are getting ready to foil or lead.

Laura Williams is a self-confessed newbie to glass art. She lives in Loveland, Colorado, and has been married for 25 years to her best friend—and sometimes custom frame maker—Hank, who has always enthusiastically supported all of her artistic endeavors.



This longtime stay-at-home mom of two woke up one day and found herself an empty nester. In the summer of 2016, a friend suggested that with all of their newfound time they should take a stained glass class. Laura was intrigued, because although she had always drawn and painted, she had never ever attempted glass art. After taking three classes, the rest, as they say, is history.

Laura would like to thank her great teacher Stacy Waldfogel of Eco Spirit Designs in Loveland, Colorado. The ladies at Northern Colorado Stained Glass Supply in La Porte, Colorado, also receive a sincere thank-you for sharing all of their knowledge, passion, patience, and support.

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# Spring Fairy

*Design by Mary Harris, Text by Delynn Ellis*

Mary Harris originally created this Spring Fairy design as a fused glass project, which was awarded first place at the Glass Craft & Bead Expo in 2016. She later changed the pattern so that the wings could be enclosed within the frame.

This 30" x 45" stained glass version includes multiple smaller pieces of glass that the artist suggests might best be cut using a ring saw. The details on the face were added using black glass paint. Be sure to visit Mary's websites, [harrisartglass.com](http://harrisartglass.com) and [bestglasspatterns.com](http://bestglasspatterns.com) to view more of her innovative glass art designs.

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WO-36 Opal/Salmon Wisspy for Wings, 1 Sq. Ft.

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7-D Gold Pink/Dense Opal/Crystal for Flower in Hair, Scrap

100-sp Dark Green/Light Opal for Flower in Hair, Scrap

WO-94 Medium Purple/Amber/Opal/Crystal  
for Background, 10 Sq. Ft.

## Tools and Materials

7/32" Copper Foil Flux Solder

Black Patina 1/2" U-Channel Zinc

Black Glass Paint

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# Spring Forth Stamping Out Winter Blues

*Design, Fabrication, and Text by Leslie Gibbs*

Photography by Jon Gibbs



In the spring, nature sheds its darkness and puts on a new dress of green. The warm days offer a reprieve from the cold of winter, the sun begins to shine brightly once more, and plants and flowers “spring” into bloom. This is the season that celebrates renewal—renewal of love on Valentine’s Day, of faith at Easter and Passover, of esteem on Mother’s Day. Many other observances come to mind as well—April Fool’s Day, Earth Day, Arbor Day, and Cinco de Mayo, to name a few.

## **Wissmach 96™**

*Glass cut slightly larger than the stamp and mold selected*

96-16 Transparent Sapphire Blue for Aloha Heart, 4" x 4"

96-06 Pale Green for Square Mermaid Dish, 6.5" x 6.5"

96-05 Superior Blue for Dogwood Blossom and Sea Turtle Dishes, 5" x 5"

96-01 Transparent Clear for Sealing Glass, slightly larger than selected base glass

## **Bullseye Slumping Molds**

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6.1" Square

4.5" Square

## **Tools and Materials**

Mica Powders in Sparkle Gold, Super Sparkle, and Copper

Clear VersaMark™ Resist/Adhesive Ink Pad and Pen

Rubber Stamps Alcohol Wipes Cotton Cosmetic Pads

Point-Tipped Cotton Swabs Toothpicks

Respirator Mask or Other Breathing Protection

ZYP Spray or Primo Primer Mold Release

Small Spoon Folded Sheets of 8" x 10" Paper

Soft Bristle Paint Brush Old Toothbrush

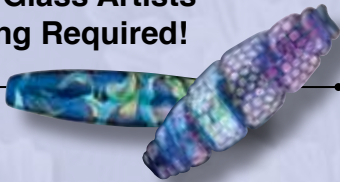
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## Stamps and Ink

For this project I chose an assortment of stamps to have a range of choices for any occasion or any season. The dogwood flower stamp, for example, along with being the state flower of both North Carolina and Virginia, is ideal for an Easter project. The legend of the dogwood flower is associated with the crucifixion. Christian sources say that the copper colored spots on the petals bear a resemblance to blood, that the petals themselves—two long and two short—are shaped like a cross, and that the wood of the dogwood tree was used to make the cross that bore Jesus.

In the studio, as in the garden, we can get busy stamping away winter. Instead of a trowel and soil, our tools are rubber stamps and brilliant mica powders, plus the flair to add a bit of powdered sunshine to our handiwork. If you would like more mica colors, you might like the Master Artisan Mica Powder Assortment.

## Deciding Whether to Slump the Project

It is not necessary to slump your mica project, since you can create a lot of different flat pieces such as trivets, tiles, pendants, boxes, or candleholders. I chose to slump my projects, but if you choose not to slump, then just follow the steps that don't involve using a mold.

For any project, whether you choose to slump it or leave the project flat, the amount of glass needed will depend on the size of stamp you choose. The glass should be cut slightly larger than the stamp you select to leave a bit of a border. Also, mica will not stick to a metallic surface, so in order to use iridescent or dichroic glass, you must cover it with clear glass so that the mica will fuse to the top side of the clear.

1

*Select a stamp and slumping mold.*



If you decide to use a slumping mold with your stamped project, select one that will easily fit the size of your rubber stamp with a little bit of space for a border. We won't be taking the mica all the way to the edges of the glass.

2

*Cut the glass you have chosen.*



You can either cap the glass with clear or leave it alone. If you will be capping, cut the clear glass slightly larger than the glass to be stamped.

3

*Test-fire the mica powders on several small pieces of glass.*



The mica powders often have a slight color change during firing, and some colors of glass are less effective displaying the colors of the mica. I recommend cutting several small pieces of glass and using the appropriate stamps to test-fire the reaction before committing to final colors of glass and mica powders.

4

*Grind the glass pieces to remove any rough edges.*



5

*Prepare the mold.*



If slumping the stamped glass, prepare the slumping mold by applying a resist material such as ZYP Boron Nitride Spray or Primo Primer.

6

*Clean the glass surface, edges, and your fingers thoroughly with alcohol wipes to prepare the surface for stamping.*



7

Press the stamp onto the VersaMark resist/adhesive ink pad until the stamp is completely covered.



Since the adhesive is clear, it can be difficult to see whether the stamp is completely covered, so examine the stamp for any dry spots and apply more VersaMark as needed.

8

Firmly but gently, press the prepared stamp straight down onto the glass.



Be careful to not move the stamp or the image will smudge. Lift the stamp carefully off the glass. If the image is good, you are ready for the next step. If the image is not clear or is blurred, just clean the glass once more with the alcohol wipes and repeat the procedure for stamping.

You can also draw a pattern or write a personal message on the glass with the VersaMark pen. Then apply the mica to the adhesive message.

When you are finished using the stamp for the day, simply clean off the adhesive residue from the stamp with some dish soap and an old toothbrush. Let the stamp dry, and it will be in good shape for the next time you use it.

9

Begin to add the mica powder.



Place the glass with the stamped image on a clean sheet of 8" x 10" paper. This helps keep your work area clean and gives you a way to retrieve any extra powder. **Be sure to wear a respirator mask or other breathing protection for this procedure.**

Using a small spoon, spread the mica on the border of the glass, then tilt the glass slightly, letting the mica "waterfall" over the stamped ink. At this point you will notice in the photos that I have switched projects, since the darker Superior Blue color better illustrates the following steps.

10

Softly brush the mica across the glass until the design shows clearly.



On some of the glass colors I selected, I found that some mica colors were too light to be effective. I simply cleaned the glass with alcohol wipes, restamped the glass, and used a different mica color. You can also blend mica colors together to create your own unique colors.

11

Add any additional colors, as desired.



You may want to add another color or two to the design. If so, use a toothpick to gently clear the areas where you want to add other colors. Next fill in the cleared area with the VersaMark clear pen. Carefully add a tiny amount of mica to that area and carefully brush the excess mica away. I used this technique to add the rust color to the tips of the dogwood blossom along with some gold mica to highlight the center of the blossoms.

12

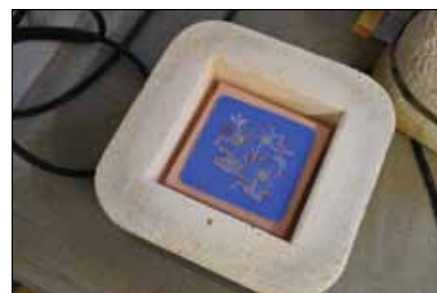
Using the makeup pads and pointed cotton swabs, remove any excess mica powder from around the stamped image.



Be careful to not touch the image, since it will smear. You can, however, use a toothpick to "carve" definition or detail into the stamped image.

13

Fuse the glass.



This is where you can add a clear glass seal if you desire, but mica can lose its color with too much time in the kiln or at higher temperatures. It's best to fire only up to between 1350°F and 1375°F and as fast as possible. Be sure to monitor your kiln's progress, since all kilns fire differently. Let the kiln and glass cool to room temperature.

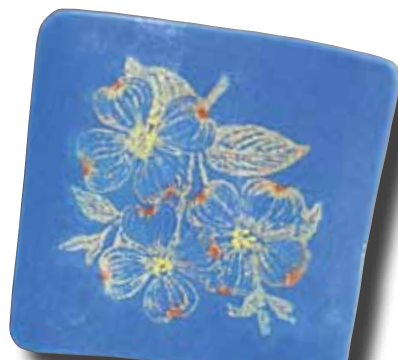
14

*Slump the glass.*



If you choose to use a mold with your project, place the fused flat glass over the mold in the kiln and follow your kiln's slumping guidelines.

Whether you are using this stamping technique to design a project that commemorates a special occasion or just to create a sparkling impression of spring or any of the four seasons, have fun with it. I got so excited about my mica garden, I wet my plants! **GPO**



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

*Leslie is a longtime Florida resident. She currently lives and works in a small beach town in Northern Florida, having forsaken the Badlands of South Florida for a more peaceful lifestyle featuring more wildlife and less concrete. A relentless jokester, the artist tackles life's common absurdities with a wicked sense of humor and a relaxed attitude. Visit [www.facebook.com/lesliegibbsstudio](http://www.facebook.com/lesliegibbsstudio) to learn more about Leslie and her art.*

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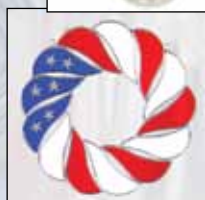


*"Nature's Bounty - I"*

Panied Expressions Studios



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# Glass Sugar Eggs

*Design, Demonstration, and Text by Susan McGarry*



A wonderful memory from my childhood involved making sugar eggs with my mom at Easter. I loved the sparkly texture of the eggs and the special treats inside, so I was very excited to figure out how to make these sugar eggs in glass. Let me share the technique with you.

This is a variation of Freeze 'N Fuse, so it's easy to get results that look advanced. The tutorial is based on making a two-sided 4" hollow egg. If your mold is larger or smaller, adjust the amount of glass accordingly.

## **Glass Frit in Desired Colors**

6 Ounces Fine Frit

1.5 Ounces Powder Frit

## **Tools and Materials**

Egg Shaped Mold with Vertical Separation, 4" tall x 3-1/2" wide

Water Spray Bottle Mixing Bowl Old Spoon

Plastic Wrap or Bag 1"-Wide Ribbon, 10" long (2)

Fiber Blanket Mask Gloves Grinder

E6000 Permanent Craft Adhesive or Two-Part Epoxy

Respirator Mask Bullseye ThinFire Shelf Paper

Ribbon, Rhinestones, or Found Items for Seam Trim

1

*Prepare the mold.*



I prefer an egg mold that separates from top to bottom, not a mold that separates around the waist. The finished product will look more like the original sugar eggs.

Lay the ribbon across the bottom of the mold. This will help you remove the glass from the mold when it's frozen. Then cover the mold and ribbon with the plastic wrap.



Use the mixing bowl and spoon to mix the two frits thoroughly before adding water.



I use a spoon I bought for a dollar, and I only use it for glass. The frit mixture should be 75 percent fine frit and 25 percent powdered frit. **Be sure to wear a respirator mask or other breathing protection whenever you are working with glass frit or powders.**

Slowly add water with a spray bottle—just 1 or 2 squirts at a time—until the frit starts to hold together. Use the back of the spoon to smash the mixture and incorporate the water. It's important to not have a mixture that is too wet or too crumbly. I used about one ounce of water for my mix.

Test the amount of moisture often by pressing the mixture against the wall of the mixing bowl until it holds together well. When it is ready it will have a creamy texture.

3

Fill the mold with the damp frit.



Use the back of the spoon to tap the frit down so that it is packed tightly. The tighter you pack the frit, the less shrinkage you'll have during fusing. Do your best to keep the edge flat so that the two halves will glue together nicely later.

Now use the spoon to scoop out the frit in the middle of the egg mold leaving about a 1/2" wall of frit. Continue to pack the wall of frit as you scoop out frit from the middle. If the glass starts to get dry and crumbly, use the spray bottle to lightly spray it to keep it damp. If you plan on having a hole in your egg like mine, remove the frit from that area also.

4

Fill the center of the mold with fiber blanket.



While wearing gloves, line the inside frit wall of the egg with fiber blanket, then fill in the center with chunks of fiber. Make sure that the inside of the egg is completely full of fiber but not higher than the frit wall. The fiber will stay in the mold during fusing to support the walls of frit, and it needs to sit flat on the kiln shelf.

You will only need a small amount of fiber blanket. I believe it is sold in one-foot squares, so you will have extra for the next project. When you're finished filling the first half of the egg, repeat steps 3 and 4 for the second half of the egg.

After both halves of the egg are filled, freeze the molds for several hours or overnight. It's important that the frit and water are completely frozen. If you try to unmold the frit too early, it can crumble and force you to start over.

5

Remove the mold from the freezer and immediately unmold the frozen frit.



Use the ribbon to gently lift the egg halves out of the molds and remove the plastic wrap.

6

Fuse the frit-filled egg halves.



Place the frozen frit on the kiln shelf lined with Bullseye ThinFire shelf paper. Make sure the fiber paper is not bulging, which would keep the frit glass wall from sitting flat on the shelf.

Tack-fuse the frit using the following firing schedule. You might need to make adjustments to accommodate your kiln. It's important to start the kiln shortly after placing the frozen frit egg in the kiln. It's most fragile when it's allowed to thaw. Tack fusing will keep the frit looking grainy and reminiscent of the sugar egg.

#### Tack Fuse Schedule

Segment 1: Ramp 200°F/hr to 1100°F and hold 15 min.

Segment 2: Ramp 400°F/hr to 1250°F and hold 1 hr.

Segment 3: Ramp 9999 (AFAP\*) to 900°F and hold 1 hr.

Segment 4: Ramp 200°F/hr to 500°F and no hold.

Segment 5: Off

\*as fast as possible

7

*Remove the fiber blanket.*



Now that the frit is tack fused, remove the fiber blanket from the center of the mold while wearing your mask and gloves. Use an old toothbrush to remove any difficult bits of fiber blanket.

8

*Use a barrel grinder or flat lap grinder to lightly remove sharp bits of glass around the edges.*

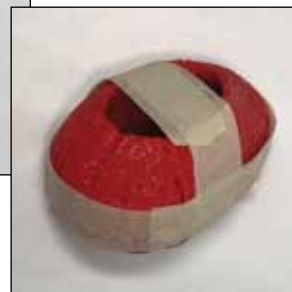


Be delicate when you do this. I remove the tray of my grinder so that I can use it like a tiny drum sander. This makes it easier to grind the small opening in the front of the egg.

9



*Using a 2-part epoxy or E6000 permanent craft adhesive, glue the 2 halves of the egg together.*



Use masking tape to hold the pieces together until the glue is completely set. Follow the directions for the glue you are using. Once the glue is dry, you can use the grinder to flatten the bottom of the egg a little so it will stand up.

10

*Cover the edges with trim to add a finished touch to the piece.*



There are so many types of trim to choose from—tiny paper flowers, ribbon, sparkly rhinestones, and everything in between. Each one will affect the finished look differently. For this egg I used red ribbon and rhinestones. Adding trim to the egg is optional, however. For a more natural look, skip this step and enjoy your finished project.



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*Susan McGarry has been passionate about glass since her first glass class and has exhibited her fused glass jewelry and artwork in shops throughout the United States and Ireland. She teaches through tutorials, books, webinars, live classes, and Facebook Live broadcasts.*



*The artist combines colors in a unique way to create one-of-a-kind designs and feels that working with glass is exciting and challenging, and that it taps into the imagination for creating something new. In 2012 she started her business, ArtiFill.com, manufacturing molds and jewelry findings for artist and crafters.*

*Susan was born and raised in southern California. Her home and glass studio are now north of the San Francisco Bay area. You can find Susan McGarry Glass at [www.facebook.com/SusanMcGarryGlass](https://www.facebook.com/SusanMcGarryGlass) as well as on Instagram @susanmcgarryglass.*



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# Flower Garden

*Design by Paned Expressions Studios, Text by Darlene Welch*

This 48" round stained glass panel provides the perfect welcome to the return of springtime. Normally in art pieces, the brilliant upper sides of flowers are portrayed. This one is a study of the undersides, also a thing of beauty . . . sort of an "ant's eye view" of the garden. The design is part of the Paned Expressions Studios pattern CD, *In Full Bloom 1*. The collection features a wide variety of flowers and includes over 80 stained glass designs for panels, fireplace screens, sidelights, entryways, transoms, lanterns, and fan lamps. There are even some rare flowers not normally seen in pattern collections.

The patterns on this CD accommodate all levels of glass expertise and are image files only, with no software included. All of the patterns are provided in color and black and white in JPG, TIFF, and EYE (Glass Eye) formats for both PC and Mac computers, making it easy to resize, reshape, and recolor the designs. Visit [panedexpressions.com](http://panedexpressions.com) to view more of the studio's fantastic collection of patterns.

**GPO**



## **Wissmach Glass Company**

277-L Medium Blue/Light Opal/Dark Blue for Background, 5 Sq. Ft.  
WO-563 Steel Blue/Opal/Crystal Wisspy for Border, 4 Sq. Ft.

### ***For Flowers***

1-L Silver Yellow/Light Opal/Crystal, 3 Sq. Ft.  
2-D Yellow/Dense Opal/Crystal, 2 Sq. Ft.  
199-LL Medium Amber/Dark Amber Brown Streaky, Scrap  
77-L Light Brown/Yellow Green/ Light Opal, Scrap  
WO-13 Opal/Copper Red/Crystal Wisspy, 1 Sq. Ft.  
28-D Orange/Dense Opal, 1 Sq. Ft.  
44-L Burgundy/Crystal Streaky, 1 Sq. Ft.  
3-L Gold Pink/Light Blue/Light Opal, Scrap  
WO-7 Gold Pink/Opal/Crystal Wisspy, Scrap  
WO-701 Medium Purple/Dark Purple/White Opal Wisspy, Scrap  
WO-17 White Opal/Red/Orange Wisspy, Scrap  
317-D Dark Amber/Dense Opal, Scrap

### ***For Leaves and Stems***

78-L Medium Amber/Green/Light Opal/Crystal, 3 Sq. Ft.  
61-L Green/Brown/Light Opal/Crystal, 2 Sq. Ft.  
57-D Medium Green/Dense Opal/Crystal, 2 Sq. Ft.  
WO-152 Yellow Green/Dark Green/Opal/Crystal Wisspy, 1 Sq. Ft.  
152-D Yellow Green/Dark Green/Dense Opal/Crystal, 1 Sq. Ft.

### ***Tools and Materials***

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

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**Wissmach Glass Company**

277-L Medium Blue/Light Opal/Dark Blue for Background, 5 Sq. Ft.  
WO-563 Steel Blue/Opal/Crystal Wispy for Border, 4 Sq. Ft.

**For Flowers**

1-L Silver Yellow/Light Opal/Crystal, 3 Sq. Ft.  
2-D Yellow/Dense Opal/Crystal, 2 Sq. Ft.  
199-LL Medium Amber/Dark Amber Brown Streaky, Scrap  
77-L Light Brown/Yellow Green/ Light Opal, Scrap  
WO-13 Opal/Copper Red/Crystal Wispy, 1 Sq. Ft.  
28-D Orange/Dense Opal, 1 Sq. Ft.  
44-L Burgundy/Crystal Streaky, 1 Sq. Ft.  
3-L Gold Pink/Light Blue/Light Opal, Scrap  
WO-7 Gold Pink/Opal/Crystal Wispy, Scrap  
WO-701 Medium Purple/Dark Purple/White Opal Wispy, Scrap  
WO-17 White Opal/Red/Orange Wispy, Scrap  
317-D Dark Amber/Dense Opal, Scrap

**For Leaves and Stems**

78-L Medium Amber/Green/Light Opal/Crystal, 3 Sq. Ft.  
61-L Green/Brown/Light Opal/Crystal, 2 Sq. Ft.  
57-D Medium Green/Dense Opal/Crystal, 2 Sq. Ft.  
WO-152 Yellow Green/Dark Green/Opal/Crystal Wispy, 1 Sq. Ft.  
152-D Yellow Green/Dark Green/Dense Opal/Crystal, 1 Sq. Ft.



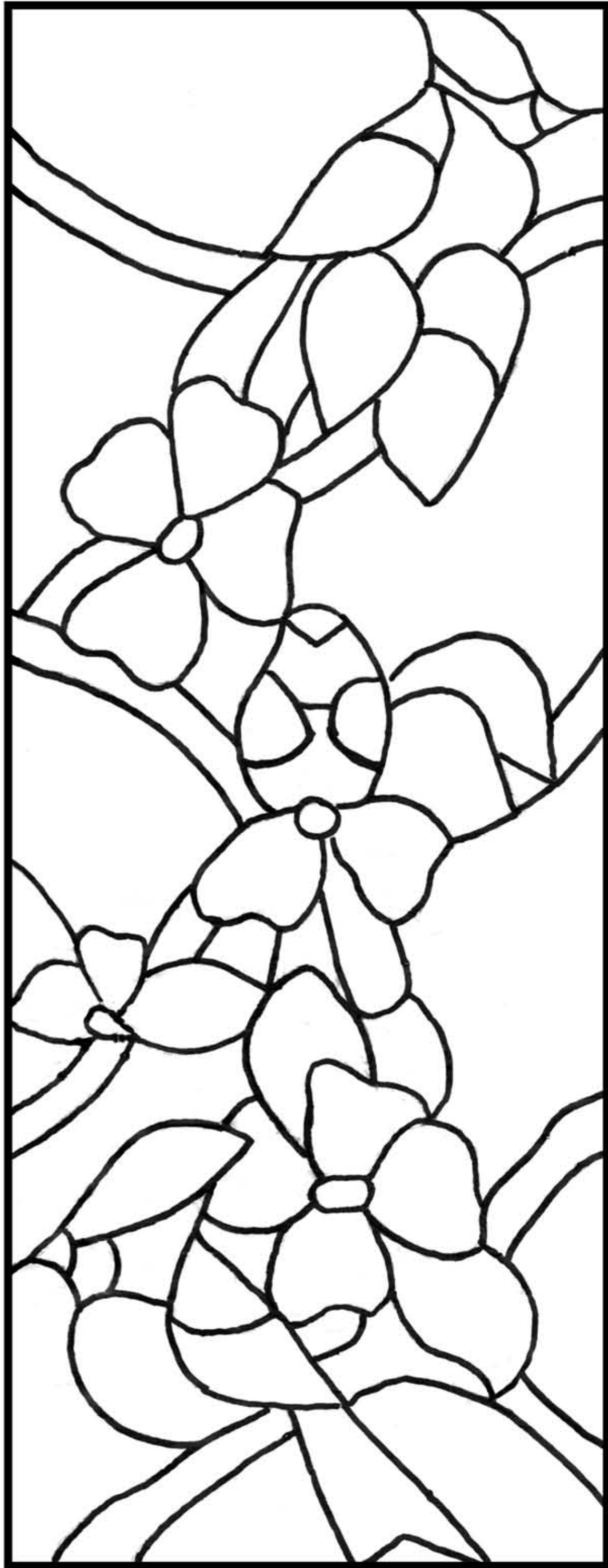
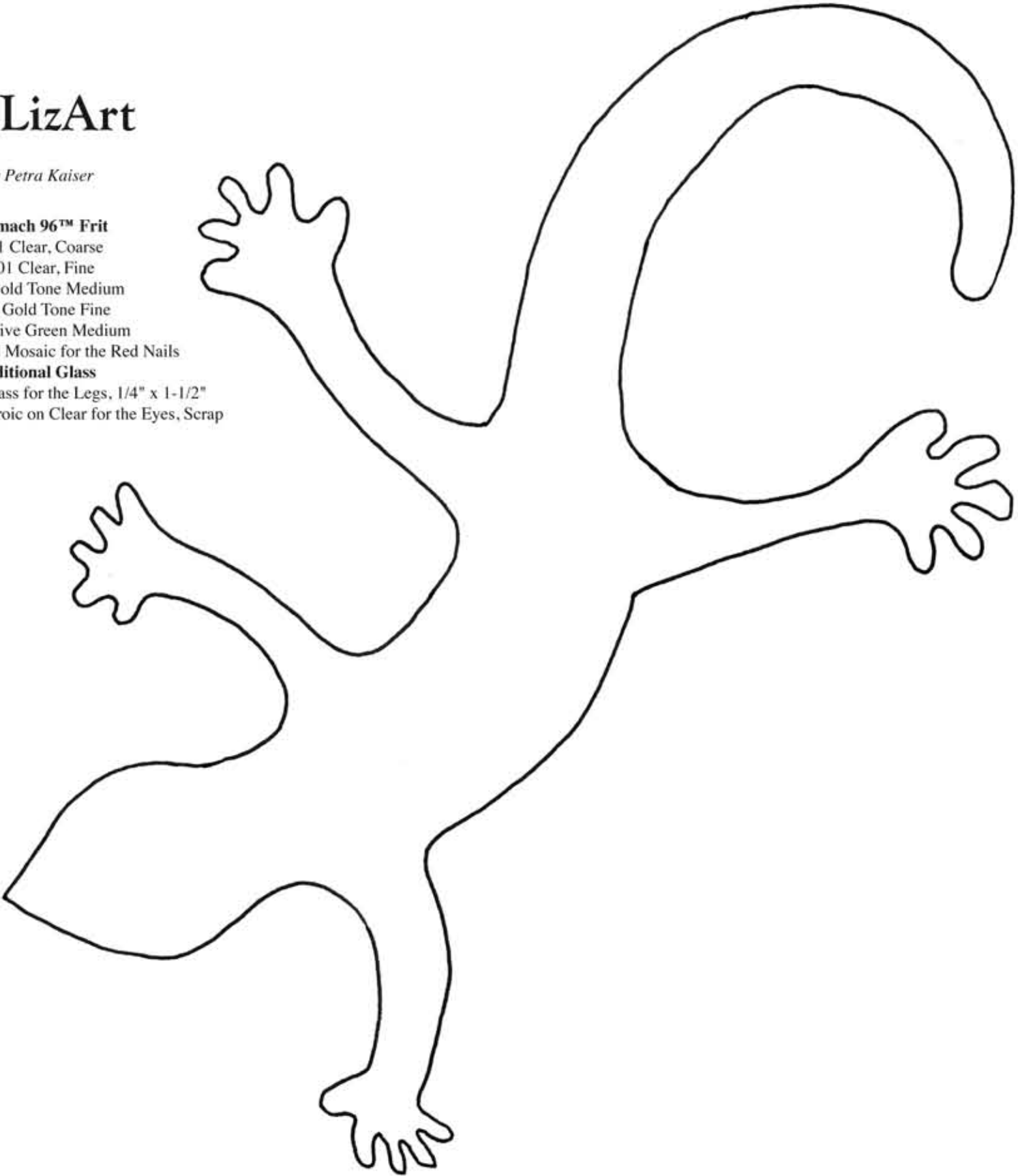
**Flower Garden**

Design by Paned Expressions Studios

**Mrs. LizArt**

Design by Petra Kaiser

**Wissmach 96™ Frit**  
96-01 Clear, Coarse  
96-01 Clear, Fine  
96-10 Gold Tone Medium  
96-10 Gold Tone Fine  
96-07 Olive Green Medium  
96-41 Dark Red Mosaic for the Red Nails  
**Additional Glass**  
4 Strips of Clear Glass for the Legs, 1/4" x 1-1/2"  
Black Glass and Dichroic on Clear for the Eyes, Scrap



**Spring Birds**

Design by Laura Williams

**Glass**

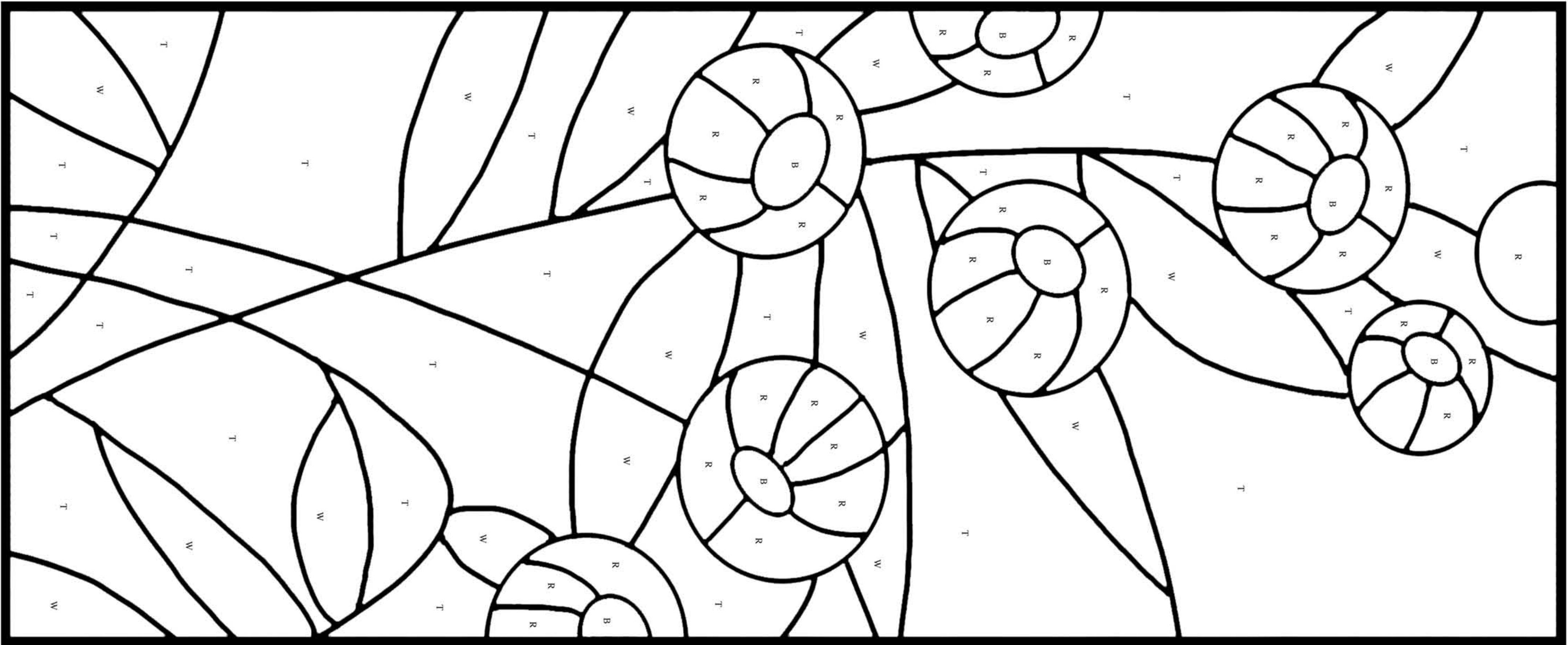
Scrap Glass in Assorted Colors and Textures

**Wissmach Glass Company**  
Acrylic-01 Clear Texture for Background, 4 Sq. Ft.  
51-L1 White Cast Opal Semi-transparent for Plum Beak, 2 Sq. Ft.  
17-L1 White Opal/Red Orange Streaky for Outer Beak, 1 Sq. Ft.  
EM-220 Cobalt Blue English Mottle for Berry Centers, 1/2 Sq. Ft.

Design by Chantal Poreé

**White Leaves**

Enlarge to desired size



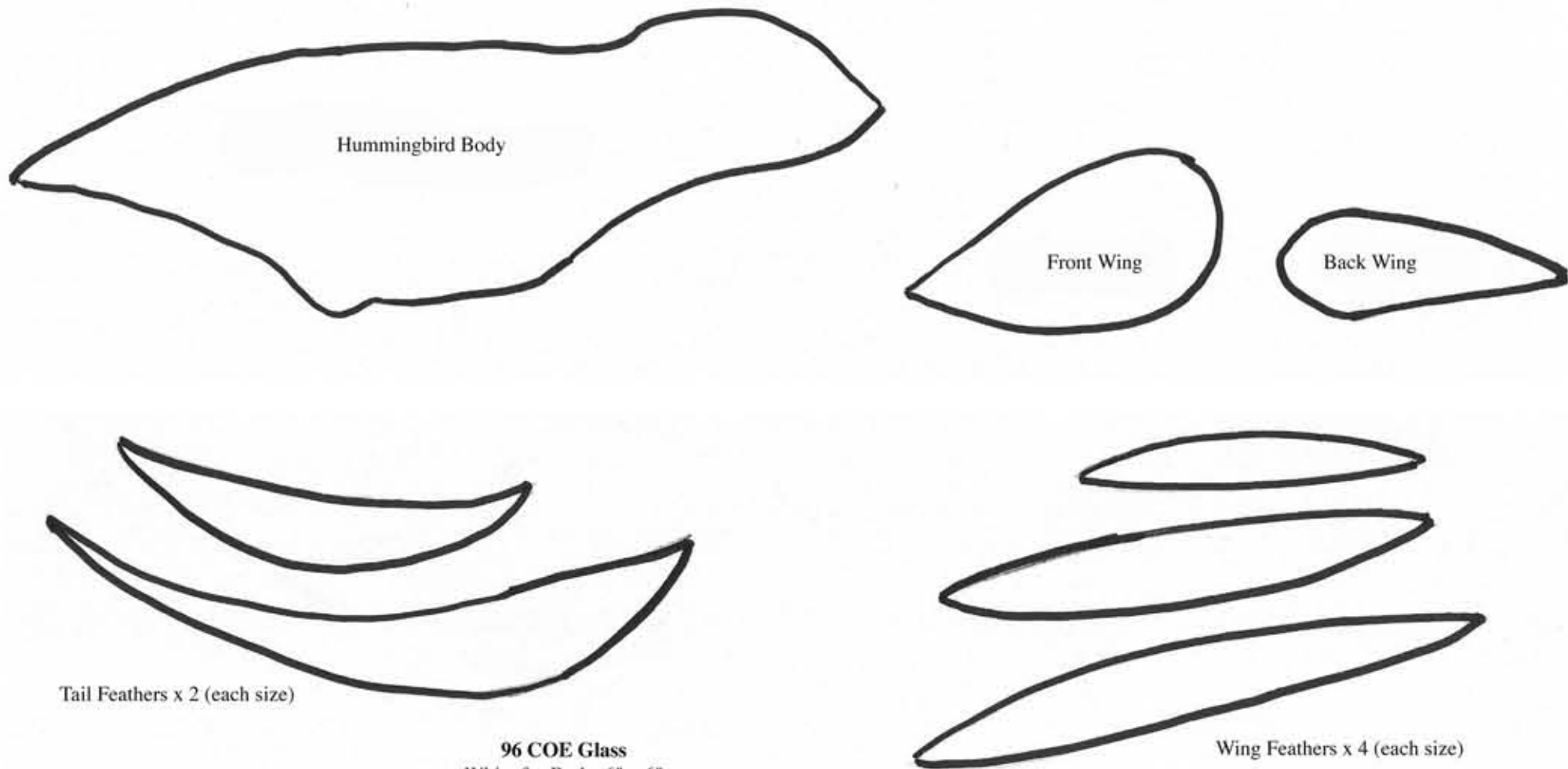


Enlarge to desired size

## Spring Fairy

Design by Mary Harris

**Wissmach Glass Company**  
1-D Silver Yellow/Dense Opal/Crystal for Flower, 4 Sq. Ft.  
WO-706 Light Amber/Brown/Opal Mystic Wispy for Flower, Scrap  
23-L Light Green/Light Opal/Copper Red for Leaves, 3 Sq. Ft.  
WO-522 Opal/Crystal/Light Champagne Wispy  
for Face, Arms, and Legs, 3 Sq. Ft.  
281-D Purple/Dense Opal for Dress, 1 Sq. Ft.  
281-L Purple/Light Opal for Dress, 2 Sq. Ft.  
2180-L Light Violet/Light Opal/Crystal for Dress, 2 Sq. Ft.  
569-D Champagne/Dense Opal/Crystal for Wings, 3 Sq. Ft.  
WO-36 Opal/Salmon Wispy for Wings, 1 Sq. Ft.  
315-D Medium Amber/Dense Opal for Hair, 2 Sq. Ft.  
7-D Gold Pink/Dense Opal/Crystal for Flower in Hair, Scrap  
100-sp Dark Green/Light Opal for Flower in Hair, Scrap  
WO-94 Medium Purple/Amber/Opal/Crystal  
for Background, 10 Sq. Ft.

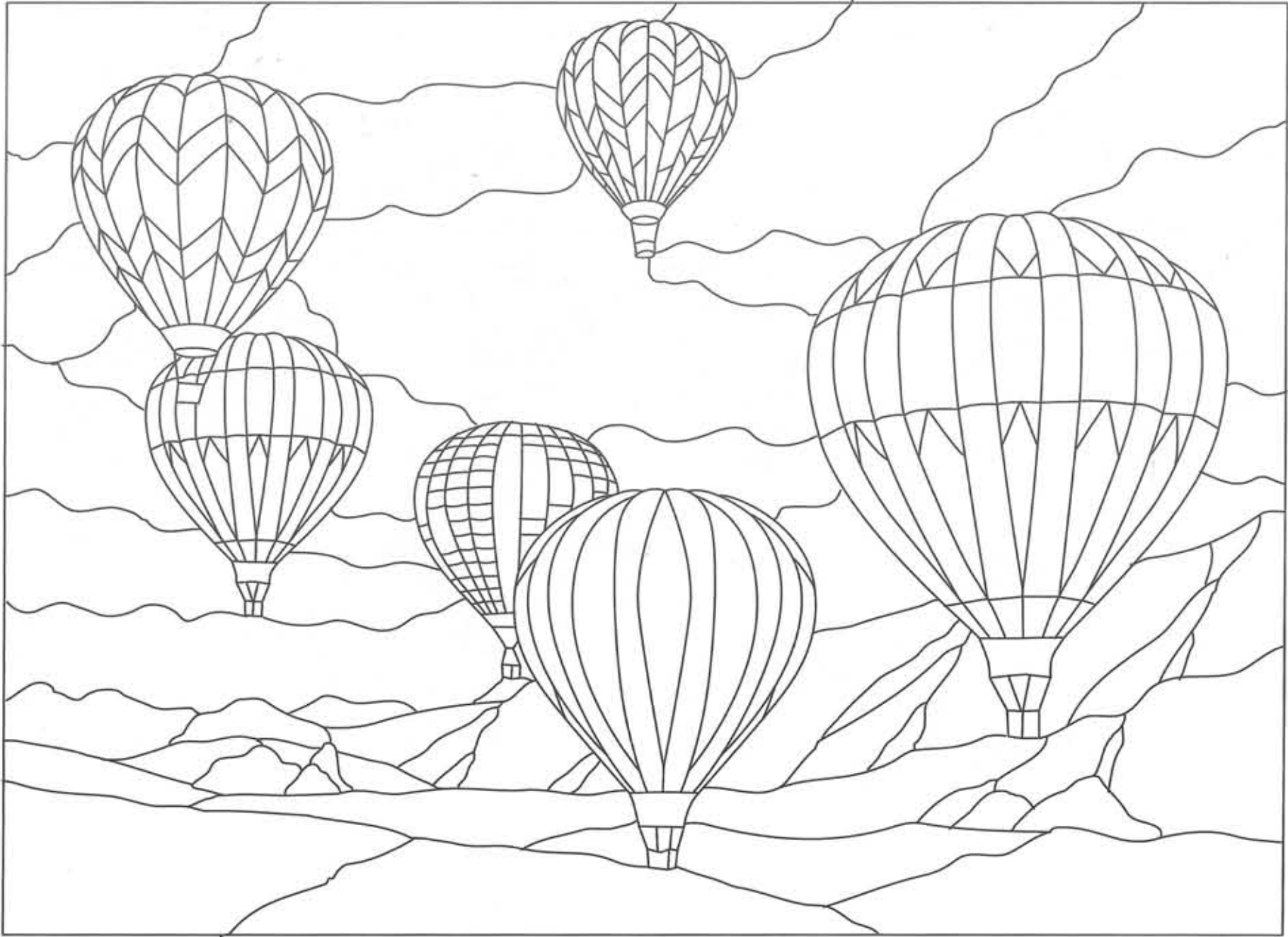


**96 COE Glass**  
White for Body, 6" x 6"  
Dark Green for Wings, 3" x 4"  
Opaque and Translucent Green and Blue Scrap  
for Feathers, assorted colors and lengths  
Black Scrap for Beak, Feet, and Eye

**96 COE Frit**  
Cobalt Blue Opal Powder  
Lemongrass Opal Powder  
Sky Blue Powder  
Fine and Medium Green Frit Mix

## Hummingbirds

Design by Alysa Phiel



Enlarge to desired size

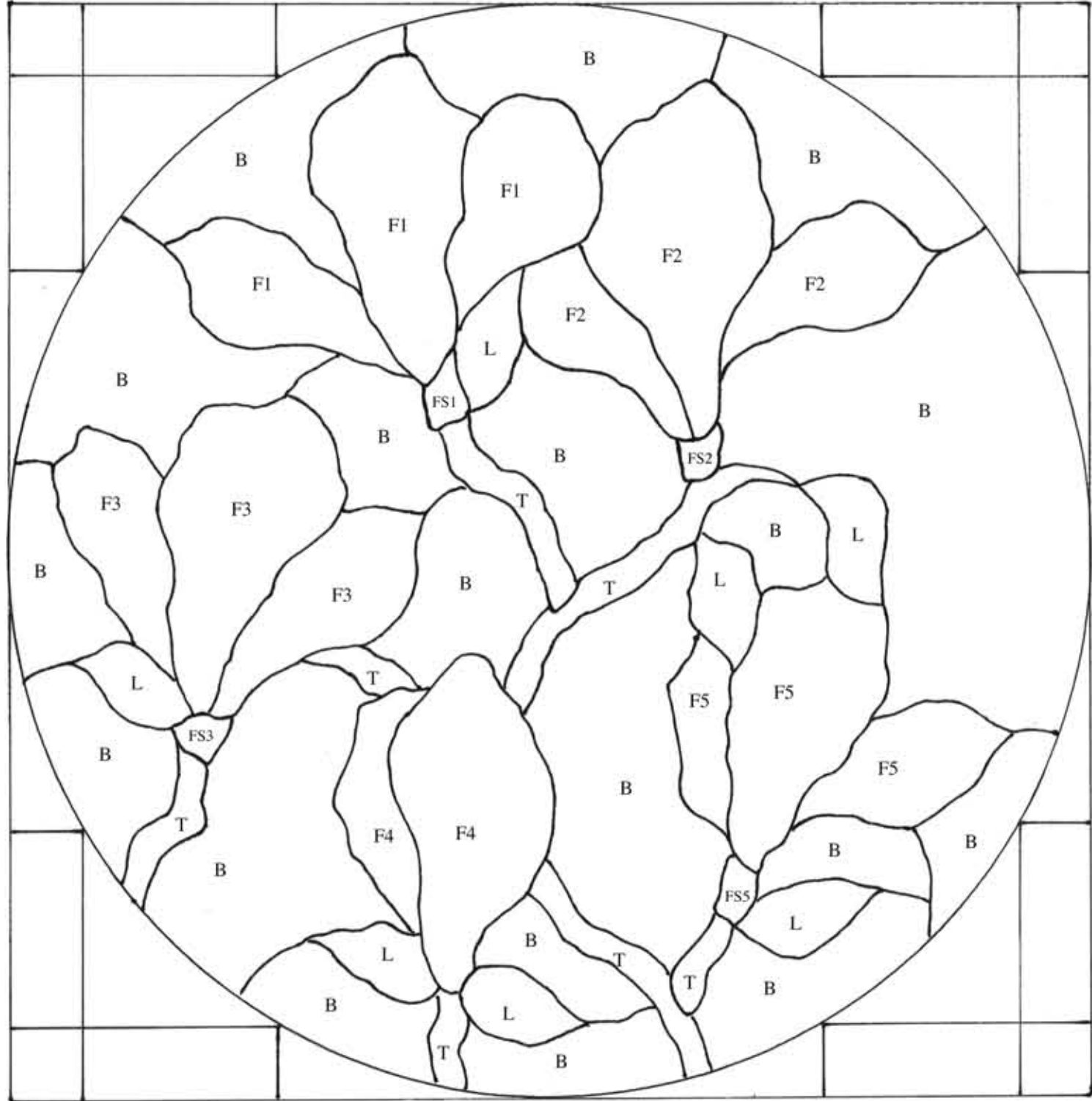
## New Mexico Hot Air Balloons

Design by Aanraku Glass Studios

First Rendering by Pamela White

**Wissmach Glass Company**  
**For the Landscape**  
188-L Grey Blue/White Light Opal for Sky, 5 Sq. Ft.  
51DDXXMsp Light Opal/Crystal for Clouds, 3 Sq. Ft.  
WO-57 Medium Green/Opal/Crystal Wispy  
for Landscape, 3 Sq. Ft.  
57-D Medium Green/Dense Opal/Crystal  
for Landscape, 1 Sq. Ft.  
78-L Medium Amber/Green/Light Opal/Crystal  
for Landscape, 2 Sq. Ft.  
245-L Medium Amber/True Green Streaky/Light Opal/Crystal  
for Landscape, 3 Sq. Ft.  
77-L Light Brown/Yellow Green/Light Opal  
for Landscape, 1 Sq. Ft.

**For Balloons**  
WO-119 Cobalt Blue/Light Opal/Crystal Wispy, 2 Sq. Ft.  
87-L.L. Sky Blue/Opal/Crystal Streaky, 2 Sq. Ft.  
01 Crystal, Scrap  
206 Dark Red Cast Opal, 1-1/2 Sq. Ft.  
WO-567 Opal/Champagne Wispy, 1 Sq. Ft.  
134 Medium Purple Double-Rolled, Scrap  
2-D Yellow/Dense Opal, Scrap  
WO-28 Orange/Opal Wispy, Scrap  
118-L.L. Cobalt Blue/Opal/Crystal Streaky, Scrap  
78 Light Yellow Green, Scrap  
57-L.L. Medium Green/Opal/Crystal Streaky, Scrap  
201 Dark Green Cast Opal, Scrap  
287 Medium Army Green Double-Rolled, Scrap  
97-L.L. Dark Cobalt Blue/Dark Purple Streaky, Scrap  
3-L Gold Pink/Light Blue/Light Opal, Scrap

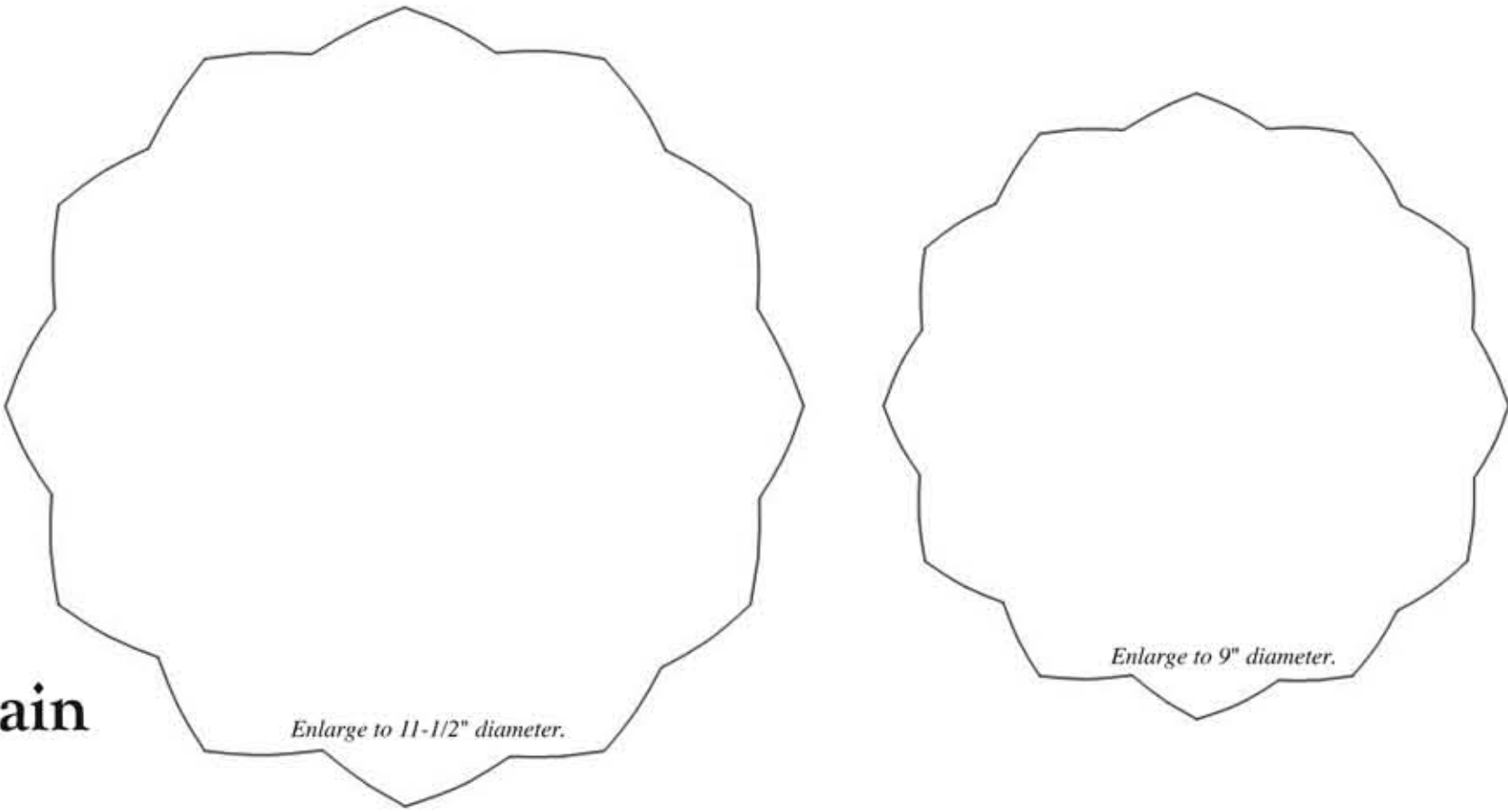


Enlarge to desired size

## Round Magnolia Panel

Design by David Kennedy

**Wissmach Glass Company**  
166-D Sky Blue/Light Amber/Dense Opal/Crystal for Background, 1-1/2 Sq. Ft.  
142-D Dense Opal/Light Purple for Flowers and Flower Stems, 1 Sq. Ft.  
223-L.L. Light Amber/Dark Brown Streaky for Branches, Scrap  
57-D Medium Green/Dense Opal/Crystal for Leaves, Scrap



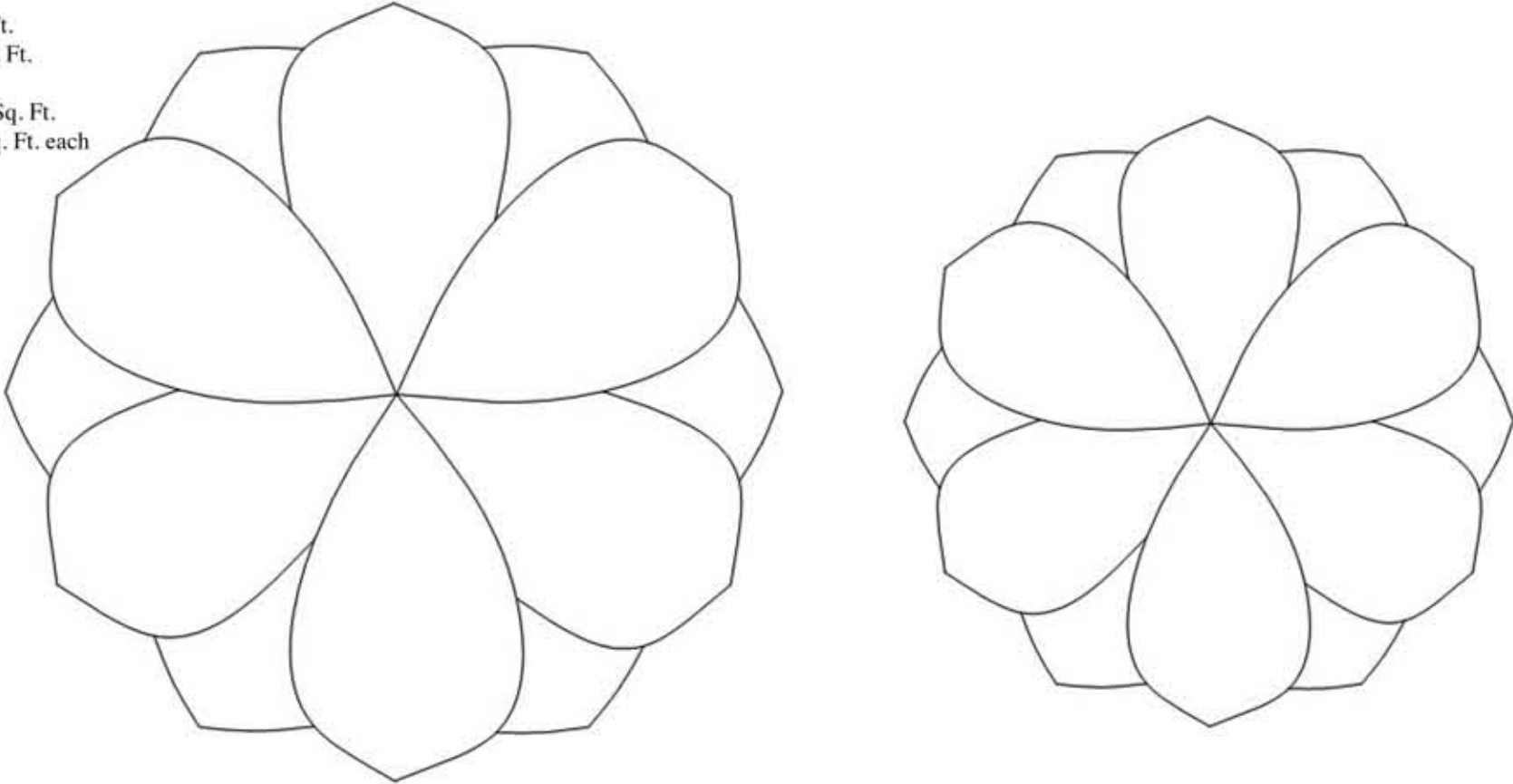
Enlarge to 11-1/2" diameter.

Enlarge to 9" diameter.

## Fused Glass Fountain

Design by Lisa Vogt

**96 COE Glass**  
100SFS Clear for Base Layer of Dishes, 2 Sq. Ft.  
233-74SF Turquoise Blue for Base of Pot, 1/4 Sq. Ft.  
**Coatings By Sandburg**  
Rainbow #2 Pixie Stix on Clear for Large Petals, 2 Sq. Ft.  
Three Dichroic Colors on Clear for Small Petals, 1/2 Sq. Ft. each



# New Mexico Hot Air Balloons

*First Rendering by Pamela White, Text by Darlene Welch*



This 30" x 41" stained glass panel celebrating the annual Albuquerque International Balloon Fiesta is from Aanraku Glass Studios' *Eclectic Volume VII* pattern collection with designs by Hiroyuki Kobashi and Jeffrey Castaline. The book's 26 patterns feature themes including florals, outdoor scenes, and a wide variety of animal life. To learn more about Aanraku's many pattern books, tools, and glassmaking accessories, visit [www.abasg.com](http://www.abasg.com). **GPO**

## **Wissmach Glass Company** ***For Landscape***

188-L Grey Blue/White Light Opal for Sky, 5 Sq. Ft.  
51DDXXMsp Light Opal/Crystal for Clouds, 3 Sq. Ft.  
WO-57 Medium Green/Opal/Crystal Wispy  
for Landscape, 3 Sq. Ft.  
57-D Medium Green/Dense Opal/Crystal  
for Landscape, 1 Sq. Ft.  
78-L Medium Amber/Green/Light Opal/Crystal  
for Landscape, 2 Sq. Ft.  
245-L Medium Amber/True Green Streaky/Light Opal/Crystal  
for Landscape, 3 Sq. Ft.  
77-L Light Brown/Yellow Green/Light Opal  
for Landscape, 1 Sq. Ft.

## ***For Balloons***

WO-119 Cobalt Blue/Light Opal/Crystal Wispy, 2 Sq. Ft.  
87-LL Sky Blue/Opal/Crystal Streaky, 2 Sq. Ft.  
01 Crystal, Scrap  
206 Dark Red Cast Opal, 1-1/2 Sq. Ft.  
WO-567 Opal/Champagne Wispy, 1 Sq. Ft.  
134 Medium Purple Double-Rolled, Scrap  
2-D Yellow/Dense Opal, Scrap  
WO-28 Orange/Opal Wispy, Scrap  
118-LL Cobalt Blue/Opal/Crystal Streaky, Scrap  
78 Light Yellow Green, Scrap  
57-LL Medium Green/Opal/Crystal Streaky, Scrap  
201 Dark Green Cast Opal, Scrap  
287 Medium Army Green Double-Rolled, Scrap  
97-LL Dark Cobalt Blue/Dark Purple Streaky, Scrap  
3-L Gold Pink/Light Blue/Light Opal, Scrap

## **Tools and Materials**

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

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# Pot Melt Buddha

*Design, Fabrication, and Text by Chris Guercio*



What better way to dress up your spring garden and use up your scrap glass than by making a pot melt Buddha? This article will show you how to melt the glass, slump it into a mold, and attach it to a stand. A beautiful spring Zen garden needs a colorful Buddha to match.

## ***For Slumping the Pot Melt***

Lap Grinder, Wet Belt Sander, Diamond Pads, or Grit  
Buddha Mold 1/4" Dichro Glass Square  
ZYP Boron Nitride Mold Release  
Cleaner for Lime/Calcium/Rust  
Nylon Bristle Brush Rubber Gloves

## ***For the Display Stand***

2" x 4" x 12" Piece of Wood  
Drill Drill Bits Saw  
H-Stand 3/8" Metal Rod  
Wood Sealant Clear Silicone Caulk

## ***For the Pot Melt Glass***

500 Grams of COE Compatible Opal Colored Scrap Glass  
500 Grams of COE Compatible Clear Scrap Glass

## ***Tools and Materials***

Small Scale to Weigh Glass  
Pot Melt or Terra-Cotta Pot Pot Melt Supports  
Dams or 8-1/2" Square Stainless Steel Former  
1/8" x 1" Fiber Paper Shelf Paper  
Dish Soap

## Preparing the Pot Melt

1

*Select the color palette for the pot melt, weigh the glass, and clean it thoroughly.*



The first step is to sort through your scrap glass and pick a palette of colors. I group like colors together, making sure to anticipate any potential reactions between colors. You'll want a mixture of about 500 grams of transparent and opal colored glass and about 500 grams of clear glass.

I keep the clear glass separated from the colored glass in case there is too much glass for the pot. To clean the glass, put all of the colored glass in a container, fill it with hot water and dish soap, swish, rinse thoroughly, then dry. Repeat for the clear glass.

2

*Gather the items you will need to perform the pot melt.*



For the melt former, you can use either dams or a stainless steel former. I prefer the 8-1/2" square stainless steel pot melt former from bonnydoonfusedglasstools.com.

3

*Line the kiln shelf with shelf paper and the form with 1/8" fiber paper.*



Make sure you line the kiln shelf or the floor of your kiln with a 9" square piece of shelf paper. You will also need to line the walls of the dam or stainless steel former with 1/8" fiber paper that is cut 1" tall.

4

*Press the 1/8" fiber paper into the corners of the dam or former and make sure there's a snug fit.*



If there is a gap where the two ends of 1/8" fiber paper meet, tuck a 1" square of shelf paper between the 1/8" fiber paper and the dam or stainless steel former.

5

*Prepare the pot melt setup and fire.*



Place two pot melt supports across the dam or former. The filled pot melt pot or terra-cotta pot will sit on top of these supports. Now measure how tall the inside of your kiln is. The top of the glass in the pot cannot touch the elements on the ceiling of the kiln. Aim for at least 1/2" between the glass and the kiln ceiling.

Add the colored glass to the pot melt pot or terra-cotta pot first. If there's room, add the clear glass. Most of the time, I have found that all 1,000 grams of glass will not fit in the pot, so I line the bottom of the dam or former with the leftover clear glass. This also has the added benefit of keeping any bowed areas of the 1/8" paper in place. Now it's time to fire your pot melt!

Here's the pot melt firing schedule that I used. This one is suited to my 90 COE scrap. If you are using 96 COE, please note some temperature adjustments for that. Also, remember that each kiln fires differently, so you may need to make additional adjustments to the schedule to fit your own kiln.

### Pot Melt Firing Schedule

Segment 1: Ramp 250°F/hr to 1100°F and hold 15 min.

Segment 2: Ramp 450°F/hr to 1685°F and hold 60 min.

Segment 3: Ramp 9999 (AFAP\*) to 1520°F and hold 15 min.

Segment 4: Ramp 9999 (AFAP\*) to 900°F (950°F for 96 COE) and hold 3 hrs.

Segment 5: Ramp 100°F/hr to 800°F and hold 1 hr.

Segment 6: Ramp 100°F/hr to 650°F and hold 15 min.

Segment 7: Off.

\*as fast as possible

Do not open to peek! Leave the piece in the closed kiln until the glass is room temperature. When cool, check to see if the pot is attached to the glass. If it is, remove the pot melt supports and break the string of glass that's attached to the pot. You can either refire the glass to smooth it out or nip the string off close to the surface. A small string or bump will disappear when you slump.

### Pot Melt Refiring Schedule

Segment 1: Ramp 250°F/hr to 1100°F and hold 15 min.

Segment 2: Ramp 300°F/hr to 1480°F and hold 10 min.

Segment 3: Ramp 9999 (AFAP\*) to 900°F (950°F for 96 COE) and hold 3 hrs.

Segment 4: Ramp 100°F/hr to 800°F and hold 1 hr.

Segment 5: Ramp 100°F/hr to 650°F and hold 15 min.

Segment 6: Off.

\* as fast as possible.

Once again, do not open to peek! Leave the glass in the closed kiln until it is room temperature.

## Preparing to Slump



6

*Finish the edges of the pot melt blank with a flat lap grinder, wet belt sander, diamond pads, or grit and elbow grease.*



Your aim here is to take off the rough edges and corners before slumping. It doesn't have to be perfect. You just don't want any sharp edges.

For the next step you'll need a Buddha slump mold. I got mine from [bonnydoonfusedglasstools.com](http://bonnydoonfusedglasstools.com). Spray it or paint it with some kind of mold release or shelf primer. I like ZYP because it goes on easily, and I can use the mold many times before it needs to be retreated.

7

*Add dichroic glass to the small recess in the forehead of the Buddha mold.*



This Buddha mold has a small recess in the forehead area for a bindi dot. Dichro shows up beautifully for that. You just need a 1/4" square, 1/4" long sliver, or even a prefired dot. Put the dichro into the bindi dot recess, **dichro side down**.

8

*Place the pot melt blank onto the Buddha mold shiny side down, align the glass squarely over the Buddha, and fire.*



Here's my slumping schedule for this thick, pot melt blank. Adjust it as necessary to fit your own kiln.

### Buddha Slumping Schedule

Segment 1: Ramp 200°F/hr to 1100°F and hold 30 min.  
Segment 2: Ramp 200°F/hr to 1320°F and hold 15 min.  
Segment 3: Ramp 9999 (AFAP\*) to 900°F (950°F for 96 COE) and hold 3 hrs.  
Segment 4: Ramp 100°F/hr to 800°F and hold 1 hr.  
Segment 5: Ramp 100°F/hr to 650°F and hold 15 min.  
Segment 6: Off.

\*as fast as possible

One last time, do not open to peek. Leave the glass in the closed kiln until it is room temperature.

9

*Give the piece a thorough cleaning.*



When the Buddha has slumped and is at room temperature, it's time to look at your new beauty! There may be mold primer residue or even bits of ceramic from the mold stuck to your glass. In a sink with good ventilation, spray the surface of the slumped glass with a cleaner designed to remove lime, rust, and calcium deposits.

After soaking for a few minutes, scrub the surface with a stiff nylon brush. You may have to repeat this step. When you're happy with the surface—perfection is not Zen!—get ready to make the display stand.

## Making the Display Stand

Custom welder Dave Hardell makes all of the wall hangers for my Buddhas as well as my garden stands. However, if you want a quick and easy way to display your Buddha out in the garden, you can make a stand inexpensively with wood and metal from the hardware store.

I found something called a small H-stand, a metal stand that is used to hold up those plastic roadside signs you see everywhere. The small one I found is 5" across, which works nicely for the Buddha. You could also use a 3/8" rod.

10

*Cut the wood to fit the back of the garden stand, drill holes to match the H-stand rods, and apply a sealant for protection.*



Start by measuring the back of the Buddha from edge to edge. It should be about 7" to 7-1/2" across. Use a saw to cut a piece of wood to fit across the back of the Buddha. For this one I used a piece of 2-by-4.

Drill two holes to match the rods of the H stand, making sure that the holes fit the H-stand before you move to the next step. You'll want to seal the wood to protect it from moisture. There are lots of options for that at the hardware store.

When the sealant is dry, apply a bead of clear silicone caulk to the edges of the wood and stick the wood to the back of the Buddha.

11



Allow the caulk to cure for at least 24 hours. After that, your Buddha is ready to display in your garden! **GPQ**



After admiring art glass her entire adult life, Christina Guericio stumbled upon a fused glass class in Columbia, Maryland, in 2009. She was hooked within just a few sessions and decided to open her own home studio, Crazy Eye Glass. She has since taken classes at The Corning Museum of Glass, Vitrum Studios, Weissner Glass, Pittsburgh Glass Center, and the Salem Community College Glass Education Center and has studied with well-known glass artists Linda Humphrey, Michael Dupille, and Laurie Spray in their home studios.

A native of Baltimore, Maryland, Christina has traveled widely and lived in Provence, France, for a year. She has two daughters, two step-daughters, and a granddaughter, all of them breathtakingly beautiful, headstrong, and intelligent. She and her husband live a quiet life in Howard County, Maryland, with their cat Leela and their dog Turbo.

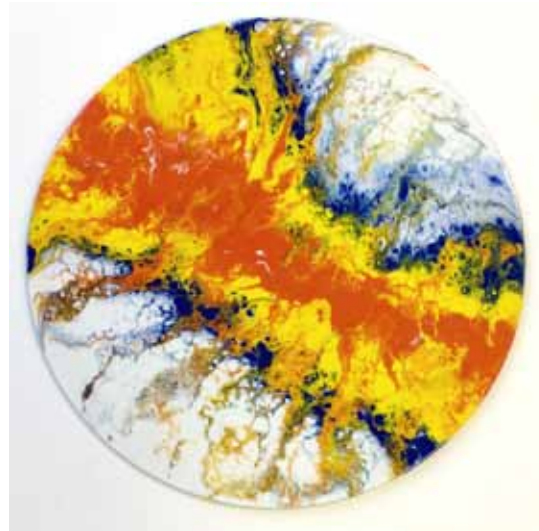
Christina's work is on display at Horse Spirit Arts Gallery in Ellicott City, the Carroll County Arts Center, and at Gypsea Glass on Jekyll Island, Georgia. You can view more of her work at [www.Facebook.com/CrazyEyeGlass](http://www.Facebook.com/CrazyEyeGlass).



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# Forest Spring Cross

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

Nothing is nicer in the springtime than taking a stroll through the forest on a sunny day. This project will take you back to the last time you enjoyed the beauty of the trees as you walked along a path through the woods and perhaps even call you to the great outdoors once again.

## **96 COE Glass**

### **3 mm Sheet Glass**

Mardi Gras White with Black Streamers

Medium Amber

Amazon Green

Clear

### **Stringers**

Black

Brown

### **Fine Frit**

Chestnut Opal

Khaki Opal

Terra Cotta

Amazon

Mariner Blue

Alpine Blue

### **Medium Frit**

Lime Transparent

Lilac Opal

Red Opal

### **Coarse Frit**

Forest Green Confetti

### **Creative Paradise, Inc.**

LF160 Medium Cross Mold

### **Tools and Materials**

ZYP Boron Nitride Mold Release Spray

2" Bare Copper 18-Gauge Wire

1/8"-Thick Fiber Paper Kiln

Mosaic Nippers Glass Cutter



## Prepping the Mold

*Spray the medium cross mold with the ZYP Boron Nitride mold release spray in a well-ventilated area.*

1



*Form a hook for hanging the cross.*

2



Cut a piece of 2" bare copper wire and a 3/4" circle of 1/8"-thick fiber paper. Slightly bend the wire into a horseshoe shape.

3

*Install the wire hanger in the mold.*



Place the wire in the mold with the curved side at the top. Put the fiber paper circle on top of the curved piece of wire. Place a small piece of 3 mm clear sheet glass over the bottom half of the wire.

4

*Add clear scrap glass to the mold.*



Use the mosaic nippers to cut up pieces of 3 mm clear sheet glass to fill the bottom of the mold and around the fiber paper.

5

*Fill the creases between the glass with medium clear frit and sprinkle it over the hook insert.*



## Creating the Forest Scene

*Add the foliage to the bottom of the cross.*

6



Sprinkle Medium Dark Green frit and fine Chestnut Opal frit in the bottom of the cross to create the forest floor foliage.

7

*Use some fine Khaki Opal to create the look of a path through the foliage.*



Continue to sprinkle some fine Dark Green frit and add some fine Amazon frit, medium Lime Transparent frit, and fine Terra Cotta Opal frit around the path.

## Adding the Sky

8

*Sprinkle some fine Mariner Blue frit inside the top of the cross to create the skyline.*



9

*Fill in between the Mariner Blue and Forest floor with fine Alpine Blue frit to create a graduated sky color.*



## Creating the Trees

10

*Cut the glass for the birch trees.*



Cut narrow pieces of 3 mm Mardi Gras White with Black Streamers/Bits sheet glass for the birch trees, with the stringers in the glass going horizontally across the tree trunks. Cut 3 to 4 narrow slices of 3 mm Medium Amber sheet glass for the brown trees and place them in the mold.

11

*Place a few brown and black stringers around the trees to make branches and twigs.*



Bend the stringers using a candle for the most natural looking branch shapes.

12

*Add frit for forest flowers, tree leaves, and shade.*



Sprinkle Medium Lilac Opal frit and Medium Red Opal frit here and there along the foliage and path to create the look of forest flowers. Place pieces of the coarse Forest Green Confetti frit on the tops of the trees for leaves and the bottom of the trees to create shade and to obscure the tree trunks.

13

*Nip some small pieces of 3 mm Amazon Green sheet glass and add them on top of the tree trunks.*



14

*Add a final layer of clear nipped glass.*



Nip chunks of 3 mm clear sheet glass and place them on top of the forest scene in the mold. Do not cover the tree trunks with the clear glass. Cut smaller pieces of 3 mm clear glass and wedge them between the tree trunks.

Fire the piece to a full fuse. I used the suggested schedule below, but remember that all kilns fire differently. You may need to make some adjustments to fit your own particular kiln.

### Full Fuse Firing Schedule

Segment 1: Ramp 350°F/hr to 1200°F and hold 30 min.

Segment 2: Ramp 9999 (AFAP\*) to 1450°F and hold 15 min.

Segment 3: Ramp 9999 (AFAP\*) to 900°F and hold 60 min.

Segment 4: Ramp 100°F/hr to 700°F and hold 1 min.

Segment 5: Cool to room temperature.

\*as fast as possible

**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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Featuring interviews and discussions with world-renowned glass artists and respected experts in hot, warm, and cold glass

## Glass Art Magazine's Podcast Craig Mitchell Smith Painting Gardens with Glass



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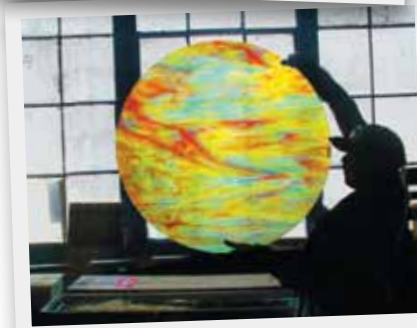
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# Mrs. LizArt

*Design, Fabrication, and Text by Petra Kaiser*

Mrs. LizArt is a little critter from nature that might like to live in your garden or even on a wall in your home. This tutorial is not just about creating a lizard. It is about glass casting with Wissmach 96 COE Frit as well as creating your own casting forms with Kaiser Lee Board.

In addition to the tutorial in this issue, you can find a video on the *Glass Patterns Quarterly* website about cutting and carving the lizard, which will be a bit smaller than the one I have here. Both lizards are available in the pattern section of this magazine. I have had the bigger version in my studio for a long time, and it has always been popular with my students. I hope you will like it as well. Let's start with a few tips for making your own casting molds with Kaiser Lee Board.



## **Wissmach 96™ Frit**

96-01 Clear, Coarse

96-01 Clear, Fine

96-10 Gold Tone Medium

96-10 Gold Tone Fine

96-07 Olive Green Medium

96-41 Dark Red Mosaic for the Red Nails

## **Additional Glass**

4 Strips of Clear Glass for the Legs, 1/4" x 1-1/2"

Black Glass and Dichroic on Clear for the Eyes, Scrap

## **Tools and Materials**

12" x 12" x 1" Kaiser Lee Board, 2 pieces

Papyrus® Kiln Shelf Paper

Cardboard or Overhead Foil Glass Jar

Greenware Saw Putty Knife Emery Board

Pencil Scissors Transparent Tape

## **Making the Mold and Predesign Elements**



1



*Transfer the lizard shape with a pencil onto the Kaiser Lee Board (KLB) and use a greenware saw to cut out the curved shapes.*

Make sure to go straight down at all times with your cuts. That way you will not create any undercuts. For creatures with legs, I like to cut out the body all the way through and carve the legs only about 1/4" to 1/2" deep.

The main cut out body shape will be saved and placed under the glass lizard later when you fire-polish the creature so that the legs will drop about an inch during firing. That will allow Mrs. LizArt to stand on her own feet.

2

Create the nail and eye pieces that you will need later for finishing the design.



First things first. Mrs. LizArt wants red nails and golden eyes. You will need to fire 20 pieces of the mosaic-size Wissmach Dark Red to round them into red dot shapes. Also fire 2 pieces of clear dichroic glass, dichroic side down, onto 2 black glass squares to round them for the eyes.

## Preparing the Mold



Cut the Papyros paper that will be used in the mold to the correct size.

3



When you use release paper such as Papyros paper, you minimize the need for polishing the piece after the first firing. Use the body shape that was cut out of the mold earlier to determine the size of the paper you will need for the shelf. The strips of paper that will be placed along the sides of the lizard before the mold is filled with frit depends on how high you want to fill the form. I cut mine 3/4" high, but 1/2" high would have been fine, too.

4

Cut a few 3/4" strips out of a stiff material to help later with adding yellow dots to Mrs. LizArt.



These are placed inside the lizard mold to help hold spaces in the body for adding the yellow frit after the main green and yellow frit mixture is added. In my case, I found some old overhead foils for that, but you can use a heavier paper or cardboard.

5



Insert the paper strips that will line the sides of the body and the foil pieces that will hold the space for adding the yellow spots into the mold.



Place a large sheet of Papyros on the 12" x 12" KLB kiln shelf with the casting mold on top of the paper. Make sure that the opening of the lizard is covered. Now add the paper strips along the sides of the lizard. Chances are that the paper will not be long enough, but you can attach several strips together with transparent tape. Cut the paper away from the leg parts.

6



Begin to layer the frit in the mold by adding a layer of clear coarse frit.



Wissmach frit comes in 4 different grain sizes—fine, medium, coarse, and mosaic. I started filling the mold by adding some clear coarse frit, which helps to keep the paper and the spot design elements in place. Clear frit in cast glass also always adds a depth element.

7

Place one of the clear 1/4" x 1-1/2" glass strips in the mold for each of the legs, with the end that touches the body resting on top of the clear frit.





8

Add 2 parts of medium green frit and one part medium yellow frit into a clean glass jar and mix the colors together.



When I made my color choice, I decided to make a green lizard with yellow spots. To make my life easier, I decided to also add some yellow to the green. That way, any spilling of the yellow frit would not matter.

Use the spoon to disperse the green and yellow frit mixture all over the body and legs. Try to stay away from the sections where the yellow spots will be.



9

Fill the areas reserved for the yellow spots with medium size yellow frit using a wide plastic straw cut on an angle.



Place the prefired red dots on the lizard's feet for the red nails and the black and dichro dots for the eyes.

10



Mrs. LizArt requested red nails, so here they are. She also wanted red lips, but I had to draw the line somewhere.

11

Remove the dividers for the yellow dots.



12

Add clear frit on top of the legs, feet, and body and fire the lizard.



Here is the firing schedule that I used. Each kiln fires differently, however, so you may need to make adjustments to the schedule for your own kiln.

Segment 1: Ramp 9999 (AFAP\*) to 1450°F and hold 10 min.

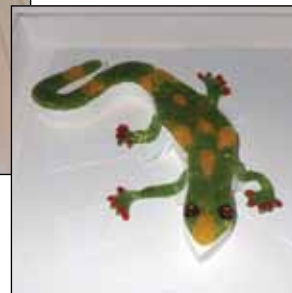
Segment 2: Ramp 9999 (AFAP\*) to 900°F and hold 2 hrs.

Segment 3: Ramp 100°F/hr to 700°F and no hold.

\*as fast as possible



13



Remove the lizard from the mold, clean it, and fire again to slump the legs.

After the first firing, remove the lizard carefully from the mold and clean it thoroughly. Remove any sharp parts with a very fine grinding bit or a carborundum stone. Set the piece of Kaiser Lee Board of the lizard's body that you removed from the mold at the beginning of the tutorial on the kiln shelf and add some pieces of Papyrus paper to the shelf in the areas where the legs will slump down during the second firing.

I used this firing schedule to set the creature on her pretty legs and fire polish it at the same time, but once again, adjust the schedule as needed for your own kiln.

Segment 1: Ramp 300°F/hr to 1000°F and hold 10 min.

Segment 2: Ramp 9999 (AFAP\*) to 1260°F and hold 10 min.

Segment 3: Ramp 9999 (AFAP\*) to 900°F and hold 2 hrs.

Segment 4: Ramp 100°F/hr to 700°F and no hold.

\*as fast as possible

Have fun creating and enjoy your very own Mrs. LizArt.

GPO

Visit [www.youtube.com/user/glasspetra](http://www.youtube.com/user/glasspetra) to view a video demonstrating the techniques used here for creating Mrs. LizArt. Petra's blog, [kaiserlee.com/fuse-it-with-petra-kaiser](http://kaiserlee.com/fuse-it-with-petra-kaiser), and the Wissmach Glass link at [wissmachglass.com/news.html](http://wissmachglass.com/news.html) offer additional information on working with Kaiser-Lee board.

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Petra Kaiser, internationally renowned kiln formed glass artist and instructor, has a distinctive style that captures Florida sun, light, and water in sculptures, functional glassware, and wearable designs. She is always drawn to 3-D sculptures and abstract shapes, and when first introduced to glass fusing in 1997, she found the available mold options rather limiting. This gave birth to Kaiser Lee Board, a perfect casting medium developed by Petra and husband Wolfgang, that is easy to cut and form into any shape for fusing molds.



Petra loves to teach and shares her cutting-edge techniques and designs with students in her Fuse It Studio and all over the world, and is a regular instructor at the Glass Craft & Bead Expo, BIG Arts, and Edison State College. She has also shared her innovative ideas in three books from Wardell Publications as well as through numerous articles in various international glass magazines. Visit [www.kaiserlee.com](http://www.kaiserlee.com) to learn more about Petra's glass art and workshops.

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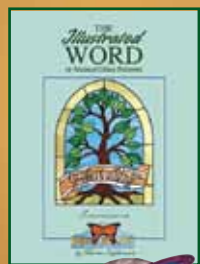
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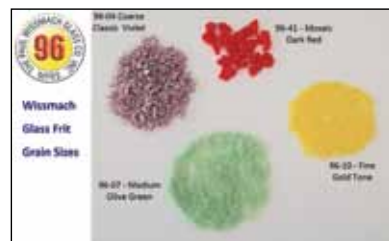
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## What's New

**Wissmach Glass Co.** has added glass frit to its line of Wissmach 96™ products. These frits will be manufactured in four grain sizes—fine, medium, coarse, and mosaic. The full lines of colors will be available soon. Visit the company's website for more details about these and all of the fabulous products from Wissmach.

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**Bullseye Glass Co.** has released the 12th edition of its popular product catalog. Highlights include 12 new styles of sheet glass, 15 new ring mottles, 3 new styles of frit, and Color Line Pastes for screen printing plus new molds, tools, and supplies. In addition to product and technical information, *Catalog 12* includes profiles of inspiring artists Heidi Schwegler, Jeffrey Stenbom, and Tim Carey of Judson Studios. More good news is that the price of Bullseye glass is staying right where it is. The latest Bullseye Glass catalog is ready for you. Order or download a copy at the company's website.

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**D&L Art Glass Supply** has a **great lineup of classes** to help you enhance your artistic talents. The 2018 schedule offers a diversified array of classes for all levels of glass artists. Accomplished instructors such as Evelyn Baker, Joanna Manousis, Jessi Moore, Kathy Thaden, and Paul Messink will share their well-crafted techniques. Topics will include fusing, stained glass, pâte de verre, painting, sculpting, mosaics, and more. Let the beautiful Colorado Rockies be the backdrop as you broaden your abilities in D&L's spacious state-of-the-art studio in Denver, Colorado, just 25 minutes from the Denver International Airport. Full class descriptions and schedules can be found on the company's website.

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**Creative Paradise** has changed the name of its new Bare Bottom Molds to **Slump Ring Molds**. The

GM230 Large Round Slump Ring 11" and GM232 Small Round Slump Ring 7-3/4" molds are placed on a kiln shelf

over kiln shelf paper, and the glass is slumped through the center to create a perfectly flat bottom on the glass vessel. The new Slump Ring molds are a continuation of the Plate Ring molds including the GM87, GM89, and GM94 that were made by the company several years ago. Visit the Creative Paradise website for more details.

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**Rainbow Art Glass** has once again introduced **more new Exquisite bevel cluster designs**. They include a sunset, infinity, Hand of Fatima, love symbol, paw prints, and more. Along with these clusters, Rainbow has added to its already extensive inventory line with new Value clear textured glass, Wissmach 96™ frits and glass, and Youghiogheny Y-96 fusible glass. There are also Creative Paradise slumping molds, Dichroic scrap packs from both CBS and Austin, and so much more.



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**Unique Glass Colors** introduces **two additions** to its line of **Color Kits** for the company's Pouring Enamels Technique. The Serenity kit has very

calming colors, and Straw Flowers teaches creating flowers using a straw. Kits contain all of the colors needed, Layering Mix, and instructions. Visit the website to see the whole line of Color Kits.

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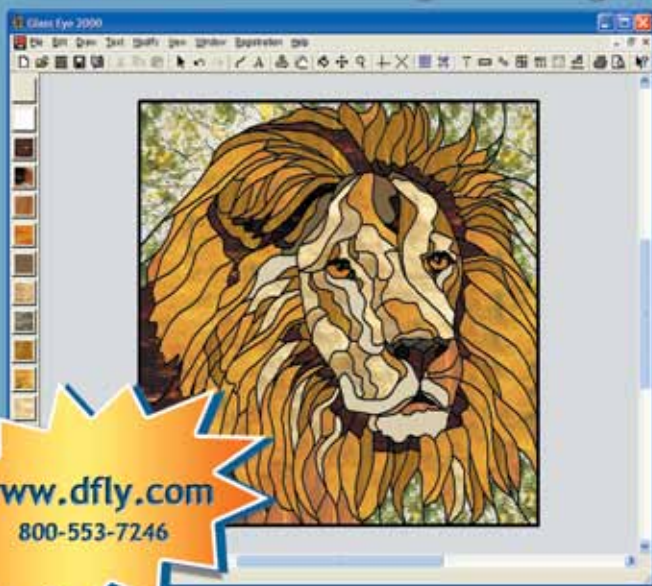
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# Hummingbirds

## Art in Flight

*Design by Alysa Phiel, Text and Photos by Jane McClarren*



Nothing is more delightful to create in glass than a hummingbird in flight. Stained glass panels have long been graced with the colorful energy of these tiny creatures. Now you can make fused hummingbirds with a texture and dimension that make it feasible to place them in your garden. We are using fine and course frit colors of Sky Blue, Cobalt Blue, and Lemongrass on a vibrant background. You will want to be sure to make more than one of these showy garden ornaments.

### **System 96®**

#### ***Spectrum Sheet Glass***

200SF White for Body, 6" x 6"

220-76SF Dark Green for Wings, 3" x 4"

Opaque and Translucent Green and Blue Scrap  
for Feathers, assorted colors and lengths

Black Scrap for Beak, Feet, and Eye

#### ***Uroboros Frit***

F1-2306-96 Cobalt Blue Opal Powder

F1-2262-96 Lemongrass Opal Powder

F1-5331-96 Sky Blue Powder

Fine and Medium Green Frit Mix

### Tools and Materials

Respirator or Other Breathing Protection  
 Mosaic Nippers Elmer's® Clear Glue  
 Basic Glass Cutting Tools Pump Style Hairspray  
 Permanent Marker Small Flat-Bottom Sifter  
 Small Clean Paintbrush Scissors  
 Bullseye ThinFire Kiln Shelf Paper or Prepared Kiln Shelf  
 Loctite 352 UV Glue or 2-Part Epoxy  
 18- to 20-Gauge Wire (3"),  
 Round Nose Pliers,  
 and Wire Cutter (optional)

1

*Cut out the pattern pieces, trace the body pattern onto the white glass, and cut out the body.*



Trace the pattern for the bird's body onto the white glass with a permanent marker. Feel free to select other colors for the body, wings, and feathers, if you prefer. Use a glass cutter and running pliers to cut the glass for the body and set the glass on Bullseye ThinFire kiln paper or a prepared kiln shelf.

**Note:** When working with powdered frit, you want to be in a well-ventilated area and out of direct drafts to avoid the powder from blowing. *It is also essential to wear a respirator mask whenever you work with glass powders to protect yourself from inhaling any glass particles.*

2

*Sift the Cobalt Blue powder over the white glass.*



Hold the sifter over the lid of the Cobalt Blue powder and pour the powder into the sifter. Gently move the sifter back and forth over the white glass and cover the surface with the powder.

3

*Using the same method, add the rest of the powder colors and frit to the bird's body.*



Add a layer of Lemongrass powder to the top of the bird's head as well as a sprinkling on the body. Sift the Sky Blue powder along the bird's back.

4

*Sprinkle the chest area with the coarser green frit mixture.*



Use the paintbrush to brush away any excess frit on the Bullseye ThinFire kiln paper. Once you are happy with your design, carefully spray the body with hairspray to hold the glass particles in place.

Hold the pump hairspray bottle 6" to 8" above the glass with the sprayer aimed slightly down and away from you, allowing the hairspray to drift onto the powder. Do not spray directly onto the powder, since that can cause the powder to move.

5

*Trace the main part of the wing and feather patterns onto the green and blue glass and cut out the glass pieces.*



Trace the wing patterns onto the Dark Green glass with the permanent marker and cut out the wing sections. Also trace and cut 12 feathers from the scrap green and blue glass.

6

*Place the front wing on the Bullseye ThinFire kiln paper and arrange 6 feathers along the bottom edge of the wing piece.*



This wing and feathers will be built and fused separately from the body and attached at an angle after fusing.

7

*Nip smaller feathers from the scrap glass.*



Use the mosaic nippers to nip approximately 30 small straight pieces ranging from 1" to 2" in length from the scrap green and blue glass. Now apply a line of Elmer's glue along the bottom edge of the wing piece, just above the long feathers. Arrange the medium length pieces in-between the first layer of feathers, with one end of each feather placed in the glue. Repeat with the smaller pieces, overlapping in-between the medium pieces from the 2nd layer.

*Sprinkle the bottom half of the main wing section with the green frit mixture to cover the ends of the feathers.*

8



Spray the glass with hairspray to hold the small pieces in place.

9

*Create and place the back wing in place perpendicular along the bird's back.*



Build this wing in the same way as you did the first wing.

10

*Trace, cut, and position the feathers for the tail.*



With the permanent marker, trace the pattern for 2 tail feathers onto the blue and green glass and cut with a glass cutter. Arrange these feathers and 2 or 3 of your remaining shorter scrap pieces from the wings on the tail. Glue the ends of feathers to the bird's body.

11

*Cut a pointed strip of black glass for the beak approximately 3" long and 1/4" at the widest end.*



Snap the piece off with breaking pliers.

12

*Cut the black glass for the eye and feet.*



Use two small scraps of black glass for the feet, each approximately 1/2" long and a small chip of the black glass for the eye. Glue all of the pieces in place. Carefully transfer the completed bird and separate wing to the kiln and fire on the suggested dimensional fuse schedule at the end of the tutorial. However, remember that each kiln fires differently. You may need to make some adjustments in the schedule to fit your own kiln. After you have removed the completed pieces from the kiln, be sure to wash the glass pieces well and allow to dry.

13

*Attach the separate wing to the bird's body.*



Take the bird, wing, and UV glue outside. Hold the wing at the desired angle to the body and spread a thin bead of the Loctite glue along the edge of the wing and body where they will be connected. Hold the wing in place for approximately one minute, which should be long enough for it to set. Add more glue along the back of the wing and body to secure. The UV glue will dry clear.

14



*Create a wire hook for holding the bird, if desired.*



Hold a 3" length of wire in the center with the round nose pliers and bend it into a U shape. Grab one end of the wire with the pliers and twist the pliers to create a curl at the end of the wire. Repeat on the other end of the wire. Adhere the hook using the Loctite UV glue on both of the wire's curled ends. You can use the hook to attach the bird to a nail or thread the hook onto a string and suspend the bird in flight.

**Note:** Loctite 352TM Light Curing High Viscosity Acrylic Adhesive requires exposure to sunlight to cure. We prefer the UV glue because once it is exposed to sunlight, it sets up very quickly. However, a 2-part epoxy can be used as well. The least expensive source we have found for this UV glue is at [www.all-spec.com](http://www.all-spec.com).

Don't be afraid to experiment with different colors for the body, wings, and tail. You can add a lot of these little friends to your garden using a variety of glass, powder, and frit combinations. **GPQ**

### Dimensional Fuse Schedule

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

\*as fast as possible



*Alysa Phiel, a regular contributor to Glass Patterns Quarterly for the past seven years, is a third-generation glass artist with 30 years of experience having been taught by her grandparents, long-time glass artists who owned their own studio for 12 years. Alysa then owned*

*and operated Creations in Glass with her mother for 10 years. She has also shared beginning to advanced classes with hundreds of students over the past eight years as the Director of the Warm Shop at Sonoran Glass School in Tucson, Arizona.*

*Recently Alysa opened her own studio, Wild Desert Glass, where she continues to create custom projects in addition to offering instruction in fused glass, stained glass, and mosaics. The artist's creativity and range of knowledge make her a fantastic teacher for students looking to create any type of glass art. She constantly experiments with new techniques and materials and helps others challenge themselves and expand their own skills as artists.*

*Alysa's work, which ranges from fused functional pieces and wall art to mosaic furniture and fountains, can be found in private collections all over the country. She also has numerous commissioned stained glass windows installed in homes and churches all around Tucson.*

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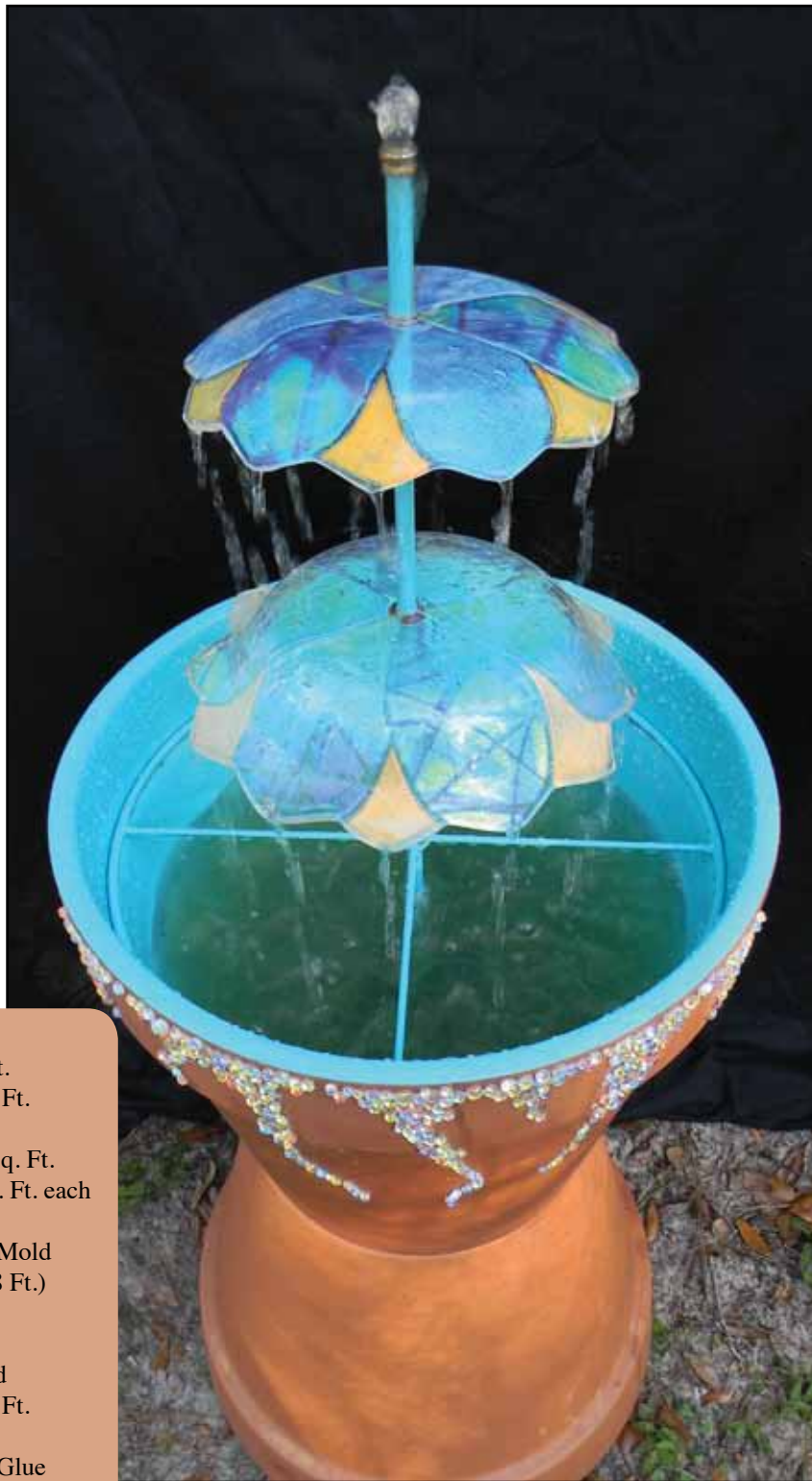
# Fused Glass Fountain

*Design, Fabrication, and Text by Lisa Vogt*

There are few things more captivating than a sparkling glass centerpiece in a pastoral setting. Add the element of cascading water and the musical chime of delicate drops, and an extraordinary sanctuary is guaranteed. Two of my favorite things are glass and gardening. When I can combine these passions in one project, life is grand.

The beauty of creating this fountain is in utilizing several glass handling techniques. At first glance, it may seem complicated, but once the steps are broken down, you'll see how easy and how much fun it is to make your own dazzling water feature.

This fountain is made with two 16" clay pots and other readily available items that can be purchased at a home improvement store. If you're tight on space, this fountain and assembly can be scaled down to fit your needs. The dimensions and component measurements given here are for reference. The pieces were custom cut to fit my pot. I recommend that you take your own measurements, since clay pot sizes may vary by region and supplier.



## **System 96®**

100SFS Clear for Base Layer of Dishes, 2 Sq. Ft.

233-74SF Turquoise Blue for Base of Pot, 1/4 Sq. Ft.

### **Coatings By Sandburg**

Rainbow #2 Pixie Stix on Clear for Large Petals, 2 Sq. Ft.

Three Dichroic Colors on Clear for Small Petals, 1/2 Sq. Ft. each

### **Tools and Materials**

12" Round Slumping Mold    11" Round Slumping Mold

60/40 Solder    Paste Flux    1/4" Cooper Tubing (8 Ft.)

1/8" Brass Rod (6 Ft.)    1" Brass Washer (2)

Brass Lamp Nuts (8)    16" Clay Pots (2)

All Thread Lamp Pipe Kit, 12"    1/2" IP Thread

Fountain Pump with Pumping Height of 3 Ft. to 4 Ft.

Seaside Rust-Oleum Spray Paint

Clear Silicone Adhesive    E6000 Permanent Craft Glue

Glue Stick    Hacksaw    Electric Drill

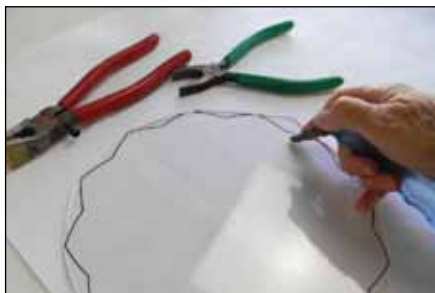
1/8" to 1/4" Glass Drill Bit    1/4" Grinder Bit

## Making the Glass Dishes

The water must fall into the clay pot or your pump will run dry and cause damage to the pump. If you change the size of the pot, make appropriate adjustments to the size of your glass dishes. These dishes measure 11-1/2" and 9" across.

1

Using the pattern as a guide, cut the clear glass bases for the two dishes.



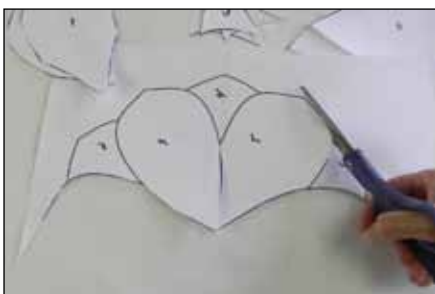
2

Grind if needed to improve the shape and edge quality.



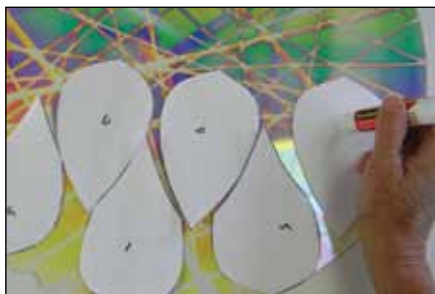
3

Cut up a copy of each of the patterns.



4

Glue the cut pattern pieces to the dichroic glass with the dichroic coating side down to protect the flashy side from wear.



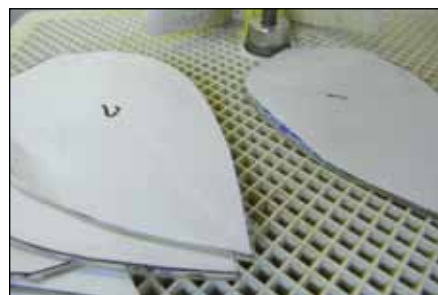
5

Cut out the dichroic glass pieces.



6

Grind the pieces for a tight fit.



7

Stack the cut dichroic pieces, dichroic coating side down, on the clear bases.



8

Cut scrap dichroic into 1/8" to 1/4" squares for the dots and place the glass, dichroic side down, on a primed kiln shelf.

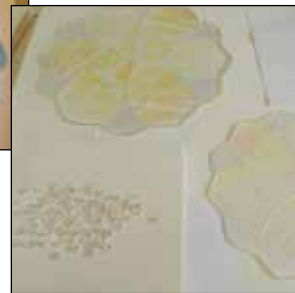


Making the dichroic dots is tedious, but trust me, you'll love them!

9



Full-fuse the squares and the assembled glass dishes using the suggested schedule guide at the end of the tutorial.



Be sure to make more dots than you think you'll need. Once you start gluing these tiny dots onto the pot and see how they play with the light, you'll want to add more.



10

Center the two fused glass dishes on molds and slump the glass according to the suggested schedule at the end of the tutorial.

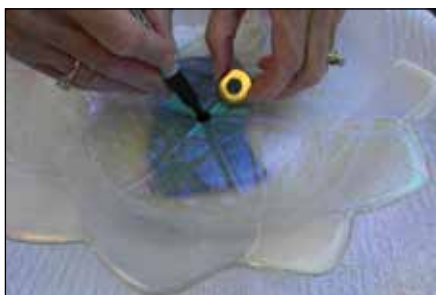


## Drilling the Holes

Don't freak out! Think of this step as grinding, not cutting. You're simply going to gradually remove material until a hole is formed.

11

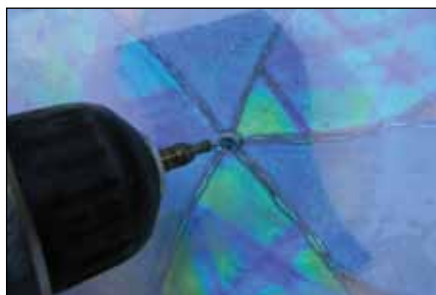
To get started, draw a circle in the center of the dishes with a marker.



Coat the marker with lip balm so it doesn't wash away. Place the dish on a wet sponge inside a plastic tray. The sponge helps to prevent the backside of the dish from blowing out. It also protects the drill bit when it breaks through the other side. Pour enough water in the dish to cover the bottom.

12

Holding the drill at an angle, begin to drill the hole.



Once the bit has penetrated the surface, lift the drill up vertically. Carefully rotate the drill bit to ensure that there is water between the bit and glass at all times.

13

Test-fit the holes on the threaded rod and, if necessary, make the holes slightly larger with a 1/4" grinder bit.



Hold a wet sponge beside the bit to keep it wet and the glass cool. Set the glass aside.

Don't rush the drilling process and don't apply excessive pressure. Allow the bit to do the work, with the weight of the drill being the only downward force. Add more water as needed. The drill bit should always be wet and well lubricated.

## Preparing the Clay Pot

There are many things that can be used to plug the hole in the bottom of the pot. I used a piece of blue glass that's similar in color to the paint I selected. Cut the glass plug into a 5" circle and grind the glass for a clean edge before installing in the hole at the bottom of the pot.

14



Glue the glass over the drain hole with clear silicone and let the glue dry overnight.

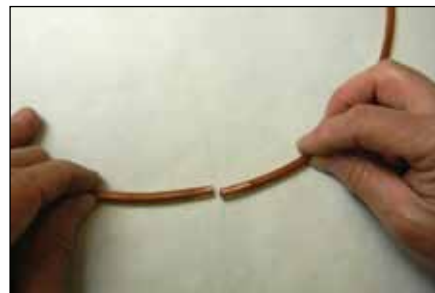


## Making the Metal Fountain Fixture

The fixture is made up of two metal rings connected by a threaded tube. The assembly is suspended from the large ring, which hangs from the inside rim of the clay pot. The large ring supports the weight of the assembly and the fused glass dishes. The small ring balances the assembly so it doesn't tilt to one side under the weight of the fused glass and water.

15

Make a ring for the inside rim of the pot from copper tubing.



Carefully measure the copper tubing to make the large ring that will rest snugly on the inside rim of the pot.

16

Cut the copper to size with a hacksaw and solder the ring together.



The large ring in this pot measures 15" across.

17

*Make a centering template.*

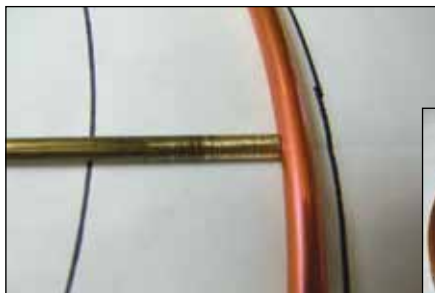
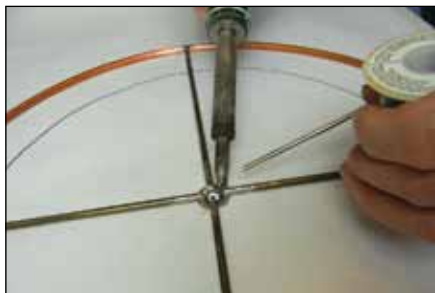


Trace the outside of the large ring on paper with a marker. Fold the paper in half, then in quarters. Unfold the paper. Where the creases intersect is the center of the ring.

Place the 1" brass washer in the center of the paper and measure from the copper ring to the washer. Cut 4 pieces of brass rod to make spokes for the ring. The brass rods used to make the large ring on this pot are 7-1/8" long.

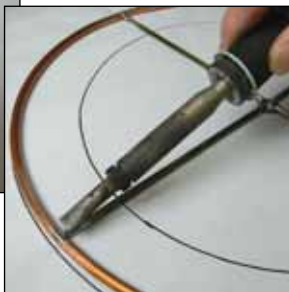
18

*Solder the brass rods to the brass washer.*



19

*Solder the brass rods to the copper ring.*



The size of the second, smaller copper ring is determined by the height of the fountain pump you use. Place the pump, along with any fittings or valves you want to use, in the bottom of the pot. Measure from the bottom of the pot to the top of the pump fittings or valve. Add 1/2" to your measurement and make a mark on the inside wall of the pot with a marker. Measure across the pot at the mark to get the dimension of the second smaller ring. Bend the copper tubing to make the second ring.

Cut the copper tubing. Solder the ring together. Test the fit to make sure it sits snugly above the pump assembly. Find the center using the same paper centering template. Measure and cut 4 brass rods to connect the copper ring to a 1" brass washer. The small ring on this pot is 4-1/2" off the bottom of the pot. It's 11-1/2" across with 5-1/4" long brass spokes.

## Assemble the Metal Fixture

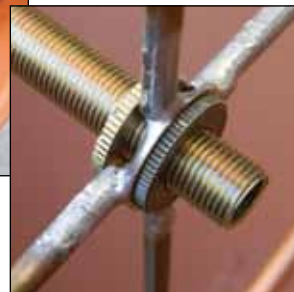
20

*Connect the two 12" threaded rods together with the coupling included in the thread pipe kit to make a 24"-long threaded tube.*



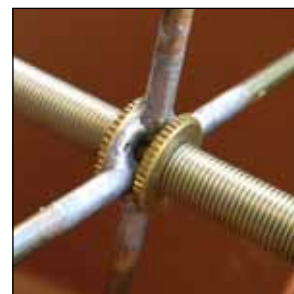
*Install the metal assembly in the clay pot.*

21



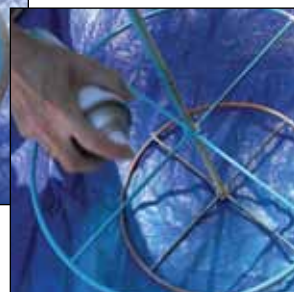
Place the fountain pump and fixtures or valve in the bottom of the pot. Thread one lamp nut up the threaded rod. Follow that with the large copper ring and a second lamp nut. Place the threaded rod inside the pump output and test-fit the large ring and rod in the pot. Adjust as needed until the assembly hangs from the pot's inside rim.

Remove the assembly. Add another lamp nut plus the small ring followed by a lamp nut. Test the fit. Move the two copper rings up or down as needed until they're snug and stable. Once you're satisfied with the fit, tighten the lamp nuts with pliers. Clean the solder off of the metal with soap and water.



22

*Clean and paint the inside of the clay pot and the metal fixture.*



Paint the inside of the pot so it will hold water, then paint the metal fixture to match the inside of the pot. Let the paint dry overnight.

## Adding the Flashy Dots

23

Place the pot in a box to support it on its side.



24

Draw a pattern on the pot with the E6000 permanent craft adhesive and arrange the dots on the glue.



Keep adding patches and dots until you have just the right amount of bling, then let the glue dry overnight. Now it's time to find the perfect spot in the yard to show off your beautiful fountain.

Place one clay pot upside down and level it to ensure that the water line will line up with the interior of the pot.

25



Stack the decorative pot on top.

26



Install the pump and metal fixture.

27



28

Thread a lamp nut on the threaded rod to hold the large glass dish at an attractive height.



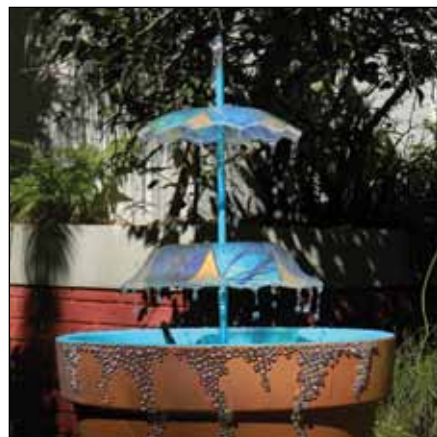
29

Repeat to install the small glass dish above the large glass dish.



30

Fill the pot with water and test the flow of the water and the placement of the fused glass dishes.



Adjust the strength of the water flow and the position of the dishes if necessary. Remember, the water must fall into the pot or the fountain will run dry, which can cause damage to the pump. Now sit back and enjoy your garden sanctuary.

**GPO**

## Firing Schedules

Please note that all kilns fire differently. Test-fire these guides in your kiln and make adjustments as needed.

### Full Fusing Schedule

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

### Slumping Schedule

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

\*as fast as possible



*Lisa Vogt discovered glass while pursuing an education in fine art. For more than*

*twenty-five years, this award-winning artist has drawn upon her fine arts background and own sense of style, drama, and whimsy to combine this historic medium with innovative glass techniques for limitless design possibilities. Her work has been on exhibit in major cities throughout the United States.*

*Lisa is the author of fourteen design books and a series of instructional videos in addition to frequent articles for industry magazines and fiction for publication. She also lectures at national and regional seminars and has been a featured artist on HGTV, PBS, and Glass Patterns Quarterly Webinars. A huge supporter of public art, Lisa regularly contributes artwork for auction to benefit local, regional, and national charities. Her home and studio are located north of Tampa Bay in Wesley Chapel, Florida, where she resides with her husband and two daughters. Visit [www.LisaVogt.net](http://www.LisaVogt.net) to find out more about her work and seminars.*



Ana-Maria Nava

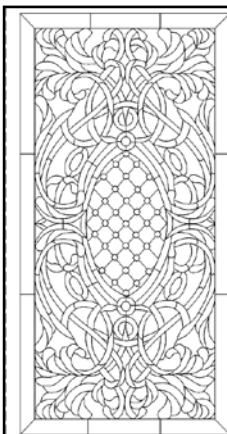
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[www.mcmow.com](http://www.mcmow.com)

### **Art Glass Design Studio**

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### **D & L Stained Glass Inc**

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321-242-6017  
[www.DLSGLASS.com](http://www.DLSGLASS.com)

### **Glass Crafters Inc**

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

### **Stained Glass For Less**

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West Palm Beach, FL 32935  
561-557-7713 / 844-SGF-LESS  
[www.stainedglassforless.com](http://www.stainedglassforless.com)

## IDAHO

### **Legacy Glass Art**

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Boise, ID 83704  
208-336-3040  
[www.LegacyGlassArt.com](http://www.LegacyGlassArt.com)

## ILLINOIS

### **Suevel Studios**

870 S Arthur Ave  
Arlington Heights, IL 60005  
224-735-2376  
[www.suevelstudios.com](http://www.suevelstudios.com)

### **Art Glass Studio of Belleville**

1600 East A St  
Belleville, IL 62221  
618-235-9638

### **Ed Hoy's International**

27625 Diehl Rd  
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## INDIANA

### **The OP Shop**

**Kokomo Opalescent Glass Co**  
1310 S Market St  
Kokomo, IN 46902  
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[www.kog.com](http://www.kog.com)

## KANSAS

### **Rayer's Bearden**

**Stained Glass Supply**  
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## LOUISIANA

### **Carousel Stained Glass**

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### **Phoenix Studio**

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### **Treehouse Glass Studio**

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Sebago, ME 04029  
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### Timeless Tiffany

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www.timelesstiffany.com

### Anything in Stained Glass

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Frederick, MD 21704-8323  
800-462-1209  
www.anythinginstainedglass.com

## MASSACHUSETTS

### The Stained Glass Emporium

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508-336-5455  
karensge@comcast.net  
www.stainedglassemposium.net

## MICHIGAN

### Straits Area Glass Co

10994 N Straits Hwy  
Cheboygan, MI 49721  
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### Delphi Creativity Center

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### Stallings Stained Glass

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www.stallingsglass.com

## Linden Art Glass

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Westland, MI 48185  
734-728-7767

## MINNESOTA

### Flamingo Glass

205 W Lincoln Ave  
Fergus Falls, MN 56537  
www.flamingoglass.com

### Glass Endeavors

2716 E 31<sup>st</sup> St  
Minneapolis, MN 55406  
612-721-9553  
www.glassendeavors.com

### Michael's Stained Glass Studio

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St Cloud, MN 56301  
800-250-2330 (MN only)  
www.michaelsstainedglass.com

### Sleepy Eye Stained Glass

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### Leaded Glass Design

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## TENNESSEE

### Fountain City Stained Glass LLC

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*Email: fountaincitystainedglass@comcast.net*

## TEXAS

### Blue Moon Glassworks

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www.austinbluemoon.com

### Merry Go Round

#### Stained Glass Center

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### Stained Glass Crafters Workbench

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www.sgcworkbench.com

## VIRGINIA

### Laurel Gallery

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www.laurelgallery.net

### Bluebird Stained Glass Studio

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540-720-4296  
www.bluebirdstainedglass.com

## WASHINGTON

### Glass Expressions

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Burien, WA 98166  
206-242-2860

## WISCONSIN

### The Glass Garden LLC

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Janesville, WI 53548  
608-754-3718  
www.eglassgarden.com

### The Vinery

1422 MacArthur Rd  
Madison, WI 53714  
608-271-2490  
www.vineryglass.com

### Hearts Desire Stained Glass and Beads

234 A Marina Ct  
Waterford, WI 53185  
262-763-6733  
www.heartsdesirestainedglass.com

## CANADA

*Alphabetically arranged by  
province, city, then store name*

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250-339-7739

### Huron Art Glass

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Barrie, ON Canada L4N 9A6  
705-721-1323  
www.huroniaartglass.com

### Artistry in Glass

#105 - 1674 Hyde Park Rd  
London, ON Canada N6H 5L7  
519-641-0443 / 877-386-1116  
www.artistryinglass.on.ca

### Downey Stained Glass & Gifts

739 Hwy 105  
Maugerville, NB Canada E3A 8L1  
506-357-3338

### Glasscraft

159 Broadway  
Orangeville, ON Canada L9W 1K2  
519-941-2505  
www.glasscraftcanada.ca

### Canadian Stained Glass Warehouse

1017 3<sup>rd</sup> Ave  
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**Call 1-502-222-5631.**

# Kiln Corner

## Electrical Installation of 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.*

**Having to unplug the kiln to turn it off is a very unfriendly option. Is there a switch I can install that would prevent having to unplug the kiln?**

Disconnecting the power when the kiln is not in use is a safety precaution that we recommend for all kilns. The easiest way to disconnect the power to a studio-size kiln is to install an electrical shutoff box near the kiln.

**Is it okay to plug a kiln into a clothes dryer outlet?**

Before installing your kiln, please look up the recommended wire gauge for the kiln's circuit. That information is listed in the kiln manufacturer's specifications.

If you are planning to connect the kiln to an existing circuit, be sure the circuit has been wired with the correct wire gauge for the circuit breaker. The wire gauge, or thickness, determines how much electricity can safely pass through the circuit. The thicker the wire, the lower the wire gauge number. For instance, a #12 wire is thicker than a #14 wire. Have an electrician determine the wire gauge of the circuit for you if you are in doubt.

If possible, install the kiln within 25 feet (7.6 meters) of the breaker or fuse panel. For every additional 50 feet (15 meters) from the panel, increase the circuit wire size by one gauge.

**We have started to deliver equipment to oil installations in the North Sea off the Norwegian coast, where they use 230v and 400v, 60 Hz. Can the Paragon Calderas that we have in stock be used on 230v 60Hz? The Calderas we have are marked 50 Hz. I assume I will have to change the controller.**

It makes no difference to the Sentry controllers whether the power supplied is 50 or 60 Hertz. The controller will operate on either Hertz.

**I bought a kiln in Australia a few years ago and now I am moving to Canada. I have to decide whether to take it with me or try to sell it here. Perhaps you could tell me if it would work on Canada's electrical system. The kiln was made for the Australian system.**

If the kiln is to stay wired as 240 volts, then the only change needed would be a new plug. Fortunately, your kiln already has a lid safety switch installed as well.

**I'm installing a 240 volt, 30 amp line for my Ovation kiln. However, there are only 214 volts available in the panel. Will this be a problem? I will cast and slump glass in the kiln at 1000°F to 1400°F. The electrician said he can install a transformer booster to add the additional volts. Do I need to add the booster, or will the existing 214 volts give me the power I need?**

Since you are firing to such low temperatures, it would probably be okay to fire your kiln on only 214 volts. Try to fire the kiln as is. If the kiln cannot reach the temperatures you need, your electrician could install the booster, or you could change the 240 elements to 208 volts.

**GPO**



*The easiest way to disconnect a studio kiln is with an electrical shutoff box. It should be installed near the kiln.*

*Check your voltage before buying a kiln. If you are going to use an existing circuit, be sure it is rated for the amperage of the kiln you are ordering.*



*If the wall receptacle feels unusually warm or smells like burning plastic, disconnect the circuit breaker and have the outlet serviced. Loose connections can cause the outlet to overheat, which is a fire hazard.*

*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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