

Make It: Dilution Solution

Glass

2 sheets:

- White, 3 mm, 10" x 10" (000113-0030-F)

1 sheet each:

- Sea Blue, 3 mm, 10" x 10" (001444-0030-F)
- Khaki, 3 mm, 10" x 10" (001439-0030-F)
- Tekta, 4 mm, 5" x 10" (001100-0480-F)

1 piece:

- Clear rod, 7–9 mm (001101-0876)

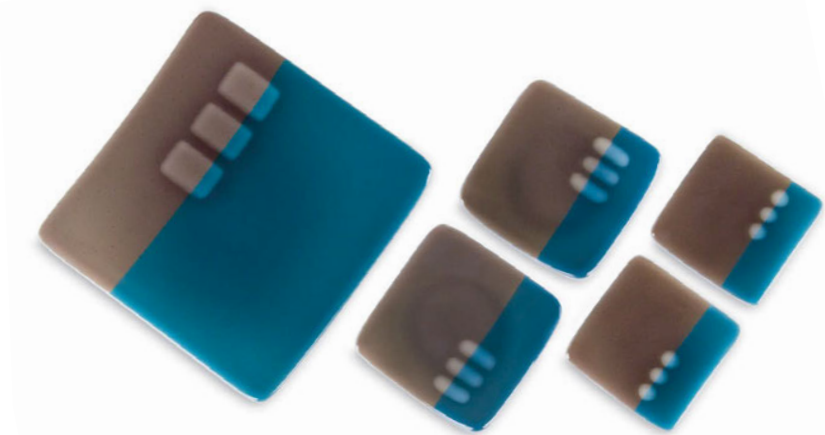
Tools & Supplies

- 3M Diamond Hand Lap 120 grit (7220)
- Basic glass cutting tools
- Bullseye Shelf Primer (8220) or Bullseye ThinFire Shelf Paper (7089)
- GlasTac (8234)
- Neo GC Cutter (7162)
- Nylon scrub pad
- Square Slumper A, 10.5 inch Slumping Mold (8634)
- Square Slumper B, 5.375 inch Slumping Mold (8997)
- Square Slumper A, 4.625 inch Slumping Mold (8636)
- Tweezers, Pointed (7212)

Helpful Resources

- Glass Cleaning Basics
- Improve Your Glass Cutting
- TechNotes 5: Volume & Bubble Control
- TipSheet 7: Platemaking
- Tips for Using Bullseye Slumping Molds
- Video Lesson: Dilution Solution (subscription required)

View articles and videos at bullseyeglass.com



WHY THIS PROJECT WORKS

Significant amounts of clear sheet and rod are fired over a palette of medium-saturation sheet to displace the material directly underneath. This creates lighter areas by diluting the color to reveal more of the white base layer.

Lay-up: White base capped with Sea Blue and Khaki. Clear design elements are placed on top.

This project produces one 9" x 9" (23 x 23 cm) plate, two 5" x 5" (13 x 13 cm) plates, and two 4" x 4" (10 x 10 cm) plates (plus rod and sheet left over for future projects).

PREPARE THE CLEAR DESIGN ELEMENTS

1. Cut three 1" x 1.5" pieces of Tekta.
2. Cut six 1" lengths of rod. Look for a relatively clean break on the ends for similar volume in each piece. In this design, these pieces are fired lengthwise and are prone to roll if not secured properly. Option: Pre-fire the rod pieces to create a flat spot along one side, eliminating the need for holding agent. Fire the clean rod pieces on a primed kiln shelf with a little space around each one. (See Pre-Fire Firing schedule.)
3. Cut six 8 mm lengths of rod. These will be placed on-end, so select pieces with relatively flat and smooth cross-sections. Cut a few extra so you can select the best. A Neo GC Cutter works well.)

PREPARE THE SHEET GLASS

See the cutting charts on the next page. Following the numbered order of operations will ensure an accurate yield of cut pieces for the project. Ideally, the pieces will be close fitting, with minimal gaps at the seam. Use a wet diamond pad to remove any flared edges preventing a tight seam. You will also need to cut one 9" x 9" sheet of White.

ASSEMBLE THE DESIGNS & FUSE

9" x 9" plate: Clean and assemble the pieces on inverted cups or blocks for easy handling. Place the White sheet glass smooth side up, then cap with the larger Sea Blue and Khaki pieces (also smooth side up). Clean the three Tekta rectangles. Starting about 1" (3 cm) from the perimeter, place the pieces over the seam, leaving about 0.5" between them. Overlap about one-quarter of each rectangle over the Sea Blue side.

5" x 5" plates: Clean and assemble the components, again checking for a tight seam on the top layer. Arrange three of the 1" sections of Clear rod over the seam with an overlap of about one-third over the Khaki side. The lower-most section is about 0.75" from the closest edge. Leave the thickness of about one rod between each piece. If using GlasTac, be sure to wait until it is set before transferring it to a prepared firing surface. Or assemble the piece directly on a prepared firing surface.

4" x 4" plates: Clean and assemble components with the rod pieces placed on end, centered over the seam, about 0.5" from the edge, spaced about 0.25" apart. Fire the pieces on a prepared kiln shelf using the firing schedule provided.

SLUMP FIRING

Prior to slumping, remove any sharp points or edges with a wet diamond pad. Note: Separator materials like primer are more likely to adhere to opalescent styles than transparent or iridized glasses. Remove residue with a green scrub pad and water.

Clean the pieces and load them onto primed molds. Elevate molds to promote even heating and cooling. Fire the pieces using the Slump Firing schedule provided.

NOTES FOR FUTURE PROJECTS

Using Clear glass for dilution and displacement has great design potential. Firing Clear directly over opalescent glasses creates yet another effect, forming pools of clear with a visually recessed surface design. When exploring this technique, leave space around each clear design element to allow for the glass to flow.

SUGGESTED FIRING SCHEDULES

Greater heatwork than our standard full fuse gives the top design elements a better chance to fuse deeply into the base layer.

PRE-FIRE FIRING (SEE STEP #2)

	RATE*	TEMPERATURE	HOLD
1	500°F (278°C)	1350°F (732°C)	:05
2	Vent kiln to cool AFAP.		

FUSE FIRING

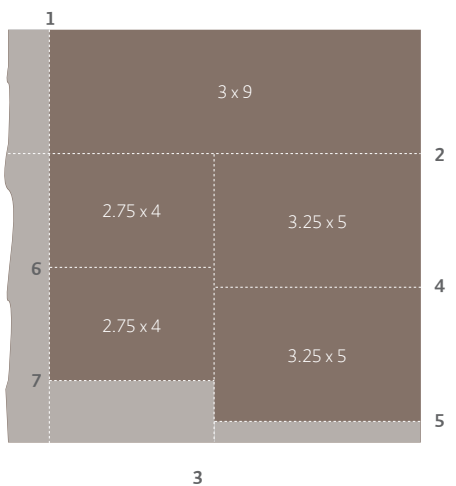
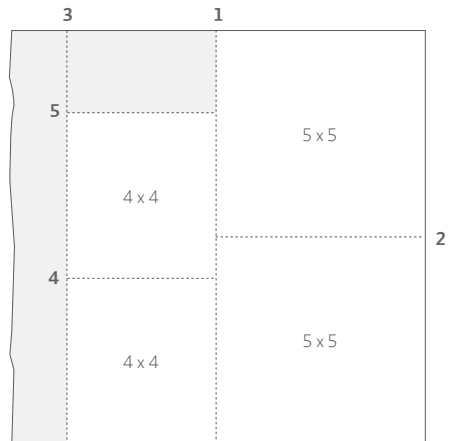
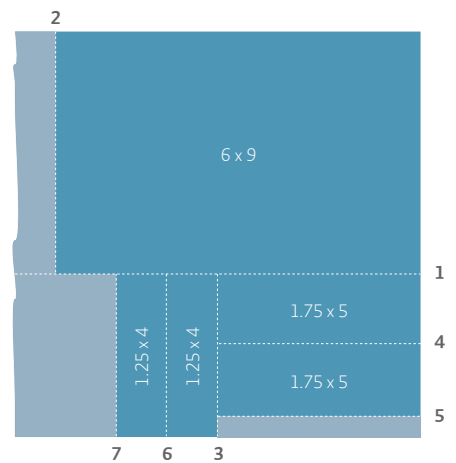
	RATE*	TEMPERATURE	HOLD
1	300°F (167°C)	1225°F (663°C)	:45
2	600°F (333°C)	1500°F (816°C)	:10
3	AFAP**	900°F (482°C)	1:00
4	100°F (56°C)	700°F (371°C)	:00
5	AFAP**	70°F (21°C)	:00

SLUMP FIRING

	RATE*	TEMPERATURE	HOLD
1	300°F (167°C)	1225°F (663°C)	:05
2	AFAP**	900°F (482°C)	1:00
3	100°F (56°C)	700°F (371°C)	:00
4	AFAP**	70°F (21°C)	:00

* Degrees per hour

** As Fast As Possible. Allow kiln to cool at its natural rate with the door closed.



Follow this order to cut the smaller pieces of colored glass. From top: Sea Blue, White, and Khaki.