



Fig. 6–18. Multiple firings at mid-range temperatures characterize Jean-Pierre Larocque's work. With each firing, the artist adds glaze and slip to achieve his desired effect.

Jean-Pierre Larocque, *Untitled (Horse)*, 2002.

Stoneware, 25½ x 27 x 11½" (65 x 68.6 x 29.2 cm). Courtesy of Dolphin Gallery, Kansas City.

Stages of Firing

A ceramic piece will usually be fired at least twice. The first time is the bisque firing. The second is known as the glaze, or *glost*, firing. Additional glaze firings are often done to achieve specific effects. Each type of firing has particular requirements from the beginning to the end of the process. Clay that has not been fired is known as greenware.

Note It When loading kilns, inspect the shelves for hairline cracks which can form over time due to stress. If you find one, put the shelf aside. Using a cracked shelf can result in extensive damage to pottery if it should break during the loading or firing.

Safety Note Always wear gloves when loading or unloading a kiln. Don't use your bare hands to brush a kiln shelf—sharp pieces of glaze adhering to the shelf can cut your fingers.

Bisque Firing

The bisque firing changes the chemical structure of clay and turns it to ceramic, but it also leaves the clay porous enough to soak up a liquid glaze. Moisture in greenware (unfired clay) causes the clay to expand when kiln temperatures are above the boiling point. This expansion sometimes results in explosions or cracking. For this reason, all greenware must be thoroughly dry before you load the kiln.

Art History

Jean-Pierre Larocque was born in Montreal and currently has his studio in that city. He received his M.F.A. from Alfred University in Alfred, New York.

Larocque's horse is one of a series devoted to equestrian subject matter. These pieces have an unfinished quality. The artist explains: "The work in process is open to change and chance. The resulting pieces are layered with evidence of erasures and traces of numerous revisions and adjustments. . . . Usually I make a piece from two to three stoneware clays of a slightly different color. Once fired, they contrast in tones and emphasize areas where clay was added or subtracted. . . . After bisque the piece is covered with some watered-down low-fire glaze and fired to somewhere between cone 1 and cone 6. Currently I fire in an electric kiln. After the glaze firing, I study the piece, add more slips/glazes and refire. . . . A piece will be refired this way five to eight times before it is resolved."

Aesthetics

Jean-Pierre Larocque layers slip and clay slabs onto his sculptures after each firing to build a form that presents the viewer with a curious play on meaning. Is he showing a crumbling and decomposing horse, or is there the potential for the figure to burst forth into a more powerful state of being? Ask students to examine the figure. Encourage them to discuss the meaning of the piece and what they think the artist's intent is. Allow them to explain reasons for their decision.



Fig. 6–19. Lisa Wolkow bisques her sculptures to cone 06, then applies white slip and refires to cone 06. She then applies glaze with a brush—a thin, even coat over the entire piece. The mottled results happen during the glaze firing, again at a temperature of cone 06.

Lisa Wolkow, *Guilford Seven #3*, 1999.
Earthenware, 16 x 5½ x 4" (40.6 x 14 x 10 cm). Courtesy of the artist.

Fig. 6–20. The three parts of this table were hand-built and fired as separate pieces. After decorating the bisqued pieces with airbrushed acrylic paints, the artist assembled the sections.

Maureen Mackey,
Tiger Table, 1987.
Hand-built, fired to cone 04, 42" (107 cm) high. Courtesy of the artist.



Fig. 6–21. How did the artist use relief and texture to create an interesting surface? Name some low-fire techniques one could use to fire a piece such as this.

Lexy Durik, *Timberland Deity*.
Slab-built, relief and textured surface. Whitmer High School, Toledo, OH. Photo by Corey Gray.

▲ Art Criticism

Lisa Wolkow's piece shown in Fig. 6–19 is another example of multiple firings with slip applied after the bisque. Direct students to examine the surface qualities of this piece and those on Larocque's horse. Have students compare their responses, list similarities in the two pieces, and identify the elemental qualities of multiple firings with slip applications.

Teaching Tip

For safety and to prolong the life of your kiln, follow manufacturer's guidelines. For example, vacuum dust out of the kiln, remove glaze spots from shelves and walls, and so on.

Start the firing slowly. In fact, it helps to preheat the kiln on the lowest setting for several hours, leaving the lid or door open. Increase the temperature gradually each hour until the color of the interior of the kiln turns a dull red. Put on heavy gloves to protect your hands, and close the lid. At this point, the atmospheric water in the clay converts to steam (between 950°F and 1300°F). Water leaves the clay along with any gases that are produced by the burning of organic materials in the clay. The temperature then can be increased more rapidly to cone 06.

Loading the Kiln for Bisque Firing

Have your teacher or another experienced person load the kiln when you first start out. Pottery can be loosely stacked to allow for the slight expanding and

contracting movements that occur during the firing. Smaller pieces can be placed inside or on top of stronger, larger ones. Bowls and plates can be boxed or stacked lip to lip, tiles can be fired in stacks, and lidded vessels should be fired as one piece with the lid in place.

The elements of an electric kiln or the burner flames of a gas kiln should never come into contact with your ware. Shapes

that do not stack well should be set on shelves. Ceramic shelves and the posts that support them are known as *kiln furniture*.

Safety Note Check the area around the kiln for any combustible or flammable materials and move them well away. If you use a top-loading kiln, check the lid to be sure it is opened securely and locked in place. Test it every time you load or unload.

Loading requires a lot of bending, twisting, and lifting. Not only must you lift delicate ware into or out of the kiln, but you have to lift, fit, and stack the shelves in place as well. Follow these suggestions to reduce strain on your body:

- Bend your knees and keep your back straight when lifting objects.
- Lean against the edge of the kiln as you load or unload.
- Lift one leg as you lean over a top-loading kiln. This acts as a lever and helps you to balance.

Note It When you load a kiln, keep in mind that shelves and posts also absorb heat. Thick pieces, like sculpture, should be placed in the middle of the kiln shelf so they don't block smaller pieces from the radiating heat.



Fig. 6–22. Describe the steps you think the artist followed to construct these forms. How would you make the spouts?

Emily Collins, *Untitled*.

Stoneware, wheel-thrown and altered, cone 10 reduction, to 14" (35.6 cm) high. Stivers School for the Arts, Dayton, OH. Photo by Kim Megginson.

Glaze Firing

Once the pieces have been bisque-fired and glaze has been applied, they are ready for the glaze firing. It takes practice to become familiar with each kiln's peculiarities, especially for the glaze firing. Certain parts of the kiln can be hotter or cooler than other parts. Experience and observation help the potter to place pieces in compatible temperature zones. For example, round shapes can withstand higher temperatures, while shallow, wide vessels are likely to warp in the hot spots. Some glazes tend to overfire, while others can take stronger heat. Chemicals and temperatures affect color results.



Fig. 6–23. A textured stonelike low-temperature glaze containing trisodium phosphate (TSP) made the base for this spectacular surface design.

Jackson Medford, from *Desert Texture* series, 1985. Incised design with brushed-on color (Mason stains in porcelain slip), cone 06, 24" (60.9 cm) high. Courtesy of the artist.

● Art History

An illustrated treatise survives from sixteenth-century Urbino, Italy. It is titled *Il tre libri dell'arte del vasaio* (The Three Books on the Art of the Potter). Written in about 1557 by Cipriano Piccolpasso, the treatise describes the ceramic industry in Urbino. Among the illustrations are depictions of clay pits, studio scenes, diagrams of molds, and the wood-burning updraft kiln used for bisque firing. The original treatise is housed in the Victoria and Albert Museum, London.

● Art History

As the industrial age advanced in Europe, potteries there showed a preference for the bottle kiln. This type of kiln was built at the Staffordshire-area potteries in England beginning in the eighteenth century; there were still 2,000 in operation in the 1950s. Some of these kilns rose to nearly 70 feet, and all were used to mass-produce pottery. The glaze, or “glost,” firing required two days. Fifteen tons of coal was needed to fire up a kiln. Such tremendous coal burning caused a pervasive dense smoke and terrible pollution in the towns where the pottery was produced. When the Clean Air Act was established in England, the kilns were forced to stop operation. Today many of the surviving kilns are historic landmarks.



Fig. 6–24. How are shape, line, and space used to suggest rhythm and movement in this raku-fired teapot? What mood does it create?

Katy Vicory, *Untitled*.

Raku-fired, extruded, and hand-built teapot. 10½ x 13 x 3" (26.7 x 33 x 6.6 cm). Blue Valley High School, Stilwell, KS. Photo by Janet Ryan.

Preparing for Glaze Firings

Before loading the kiln, follow procedures that will protect your work and equipment. Glaze drips are difficult to remove from kiln shelves, but painting shelves with *kiln wash*—made from equal parts of kaolin and flint—will protect them from damage caused by melted glaze.

- Always inspect shelves for cracks before loading a kiln. Never use a cracked shelf in a setting.
- Mix dry kiln wash with water to the consistency of thin cream.
- Brush the shelf with water.
- Brush kiln wash on the shelf, keeping brushstrokes in one direction.
- Cover with two more coats of kiln wash, painting each coat in a different direction.
- Let the shelf dry slowly and completely before firing.

Loading the Kiln for Glaze Firing

Loading glazed pieces for firing takes special care, because glazes will fuse if the pieces touch one another. Pieces should be placed on shelves that have been painted with a thin coat of kiln wash.



Fig. 6–25. In raku firings unglazed surfaces will turn black from the carbon that forms when materials combust. What areas of this slab-built piece are unglazed?

William Penn, *Copper Pot*.

Raku, 5½" (13.9 cm) high, 8½" (21.6 cm) diameter. Stivers School for the Arts, Dayton, OH. Photo by Kim Megginson.

Pieces of approximately the same height should be placed together on a shelf with at least $\frac{3}{8}$ " (1 cm) between them. When the shelf is full, place supporting posts for the next level in the corners, and add another shelf on top of them. Continue adding levels until the kiln is full. Carefully place pyrometric cones on the shelves so that they are visible through the peepholes.

Cooling Down

Once the kiln reaches the correct temperature, it needs to be turned off. In fuel-burning kilns (like gas kilns), the dampers should remain open for a minute or two to allow any gases to escape, then closed tightly. The cooling-down period is very long. Don't remove pieces from the kiln until they are cooler than 130°F .

Note It It should take at least as long for the kiln to cool down as it does to heat up because chemical changes in glazes and clay continue to occur until cooler temperatures are reached.



Fig. 6–26. Describe the movement and rhythm in this group of teapots. How would it be different if you removed one teapot?

Diane Courington, *Teapot Series*.

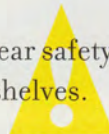
Stoneware, hand-built with original press molding, cone 10 reduction. Stivers School for the Arts, Dayton, OH. Photo by Kim Megginson.

After the Glaze Firing

After unloading the kiln, follow these procedures to keep your studio well-organized.

- Scrape glaze drips off shelves using a putty knife. (Large glaze melts may have to be removed with a grinder or a chisel and hammer.)
- Repaint scraped areas with kiln wash.
- Stack shelves away from areas of traffic.
- Organize kiln furniture (stilts) according to size, and store on shelves.

Safety Note Always wear safety goggles when chipping glaze off shelves.



Principles of Design

Movement and Rhythm

Movement is a design principle used by artists in many different ways. Some sculptors incorporate actual motion into their work—for example, in a mobile that moves when it catches air currents. Other artists create the illusion of motion, as in the student work on page 138 or Karen Brown's holographic mixed-media work on page 176. How can you incorporate movement into your own work?

Rhythm is a closely related principle—an ordered movement made by the repetition of visual elements. Guiding your eye through an artwork, rhythm can be smooth and flowing, or jagged and irregular. It can follow a definite pattern or be scattered haphazardly. Movement and rhythm can influence the viewer's mood and feelings.

▲ Aesthetics

Ask students to look at Fig. 6–23 on page 163. Talk about how the surface demonstrates movement and rhythm. What device did the artist use to incorporate movement into his piece? Discover what visual elements are repeated. Direct students to write a paragraph describing the rhythmic qualities of the piece and the mood they create.