

Clay Basics

The process of building with clay:

1. A builder gets his clay from the source (such as a package or a mixer). The kind of clay we are using is "Low Fire White Clay".
2. Kneading (if necessary) as the clay needs to be at the correct level of wetness/dryness, and have the air bubbles removed.
3. Builder then works the clay into the shape he/she wants.
4. If not enough time is available, clay can be wrapped up in wet paper towels and a plastic bag and stored.
5. When builder has formed clay to desired shape, 1-2 days will likely be needed before clay can dry
6. When clay is dry, it can be Bisque fired in the kiln. We fire our clay up to 1888 degrees.
7. Two possible endings:
 - A) If the artist does NOT wish to glaze clay, then the artist might paint clay with paints. Once paint is dry, clay product is complete
 - B) If artist DOES want to glaze, then glaze is applied in 2-3 coats, and is fired again in the kiln. This is called the Glaze fire. Once the Glaze fire is finished, the work of art is complete.

- Additive Method- When building with a wet portion of clay, the additive method is to add another formed piece of clay to another. Example, if I was building a person out of clay and I had their body made from one chunk of clay, if I added a chunk of clay that was formed to be the head that would be the "additive method."

- Bisque Firing- After a clay is formed to it's desired shape, it is allowed to dry and fired in a kiln. The end product of this firing is the bisque firing (or oftentimes called simply "bisque").

- Ceramic- An inorganic, non-metallic solid prepared by heat and subsequent cooling. Ceramic materials may have a crystalline or partly crystalline structure.

Ceramic Change- The point at which clay becomes ceramic. It is brought about by the removal of the hydroxyl groups from the chemically combined water in the clay molecules. The point at which this occurs varies according to the type of clay mineral involved but is generally considered to take place at around 1022 degrees F. After the clay is fired, it will not regain plasticity when in contact with water.

Clay- A fine-grained rock which when suitably crushed and pulverized, becomes plastic when wet, leather-hard when dried and on firing is converted to a permanent rock-like mass." Clays are formed by the breakdown of feldspathic rocks, particularly granites, diorites and basalts.

Coiling- Hand-building technique, involves forming and joining narrow coils of clay to build up vessel walls.

Firing- The process where clay is converted to ceramic. A temperature in excess of 1022 degrees F is required to drive off chemically combined water from the clay molecules and make them ceramic. When this process has occurred, the clay will be hard and will not become plastic when in contact with water.

Glaze- Glazes are vitreous coatings consisting of a glass former (usually silica) with the addition of a glass modifier, or flux, to lower its melting point. Typical modifiers are lead, sodium and potassium. Color is achieved by the addition of metallic oxides, such as copper and iron.

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Glaze Fire – If a Bisque ceramic structure is painted glazed, the glaze must be fired so that it forms to its color and glass-like structure. This fire is called the glaze fire.

Kiln - A structure for firing ceramics. Kilns consist of a firebox, a flue, a firing chamber, a dome (which may or may not be permanent) and an exhaust vent. The raw clay vessels are placed in the firing chamber.

In contrast to open firing, kiln firing utilizes hot gases rather than direct contact with the flames to fire the pots. It is a much slower and less economical process, as much time and fuel are expended in heating the kiln structure itself. However, the end products are generally of higher quality.

Kneading – The process of working new clay to its desired state. Clay often contains air pockets or is too wet to use effectively, so techniques of kneading such as rolling with a rolling pin are necessary. If it is too wet, it can be spread over a canvas. The canvas will absorb the excess water in the clay.

Leather-hard - Clay that has dried to the point that it has lost most of its plasticity but is still soft enough to be carved or altered.

Low Fire White Clay- The clay that we use in our classroom. Also known as Kaolin, it is one of the lightest clays. It is less reactive to skin than other forms of clay and needs to be fired between 1820-1920 degrees.

Pinching - Hand-building technique, involves forming vessel by opening clay ball and pulling vessel walls up between fingers.

Plasticity - The ability of clay to be molded and maintain its shape.

Porcelains - Ceramic vessels fired to temperatures above 2462°F, with shiny surfaces, usually white and translucent.

Reductive Method – Opposite of additive method. It is when you take away from a chunk of clay in order to get the desired effect. Example, if you wanted to carve letters into clay, you could dig the letters out with a tool similar to carving into wood. This is a “reductive method” of working clay.

Shrinkage - Clay shrinks at two different times: 1) during drying and 2) at temperatures in excess of about 1650° F during firing. During drying, shrinkage is a direct result of the amount of free water present and fine clays will shrink more than coarse ones. The smaller the clay particles, the greater the amount of water that can be absorbed between the particles to make the clay plastic, and therefore the greater will be the shrinkage as the clay dries.

Slip - Liquid mixture of clay and water applied over surface of vessel to affect color and texture.

Slab Building - Hand-building technique which involves forming flat slabs of clay and connecting them to form a vessel.

Weld - A general term used to combine two bodies of clay together by means of mixing the clay from the two bodies into each other.