Clay Sculpture – Building Solid

Vince Pitelka, 2021

With the kilns and firing protocol we generally use in studio ceramics it is almost impossible to fire very thick solid forms with consistent success. For that reason, few clay sculptors choose to create solid work. But for certain kinds of sculpture, there can be great advantages to working solid and then cutting and hollowing the form. This is particularly true of expressive human or animal figurative sculpture. One has only to watch Beth Cavener manipulating clay on her large-scale animals to recognize these advantages. When building sculpture via the coil or slab methods, the form must necessarily be constructed as close as possible to the desired shape. There are severely limited opportunities to modify the form as it begins to stiffen, and when soft it won't stand up to any radical alteration of form. Sculptors who choose to coil-build or slab-build learn to deal with the challenges, often by using props and internal bracing.

When working solid, the surface can be aggressively manipulated. Clay can be added or cut away at any time, and the form can be beaten with a mallet, paddle, 2x4, or baseball bat to alter shape. When leatherhard, the sculpture is cut into sections, hollowed out, and reassembled. For anyone who hasn't done this, it might seem like a lot work compared to working hollow, but those who appreciate the advantages of working solid find it very worthwhile and not at all difficult.

Supports and Armatures – In working solid it is often advantageous to keep the whole form fairly soft in order to work the entire surface as the design is resolved. But clay is heavy, and the greatest challenge is supporting the soft clay form. This requires an internal armature or external frame to provide support during construction and completion. The simplest system is to build up the clay around smooth, untextured dowels, wood strips, or metal pipes. They can protrude from the clay wherever necessary or convenient and can be supported externally when needed. Envision a standing figurative sculpture in a partial crouch with the legs bent at the knees. A dowel or pipe inside each lower leg would protrude from the bottom off the foot and at the knee, and another inside each upper leg might protrude from the knee at a different angle and also at the hip. An arm sticking out to the side with the elbow bent might be supported by one dowel or pipe embedded in the torso, passing through the upper arm and protruding at the elbow, and another inside the forearm. Whenever necessary, the protruding dowels or pipes can be attached to an external frame for additional support.

Once the sculpture is basically resolved and the clay begins to stiffen, the dowels or pipes are removed. At that point, temporary external props are often required. These props need be nothing more than wood sticks with a lump of clay on each end, but keep in mind that wood props will not shrink as the sculpture does, and must be adjusted and repositioned frequently. Cloth straps or slings suspended from an overhead frame are another option.

For a handy external support frame useful with sculpture up to 20" tall, search Amazon for a "laboratory support frame," traditionally known as a ring stand. Get a supply of the standard right-angle clamps that will attach to the vertical shaft of the stand and will in turn support a horizontal dowel or rod. The clamps will accept any size of dowel, rod, or pipe up to about ¾" in diameter, and thus are very versatile for this purpose.

For larger sculpture, an appropriate external support frame is easily constructed from standard iron pipe fittings available from any hardware store. Such a frame can provide support for dowels or pipes extending into the clay wherever necessary. The diameter of the pipe for the frame depends on the scale of the sculpture. For works up to 36" high, ½" pipe attached to a base of ¾" plywood 24"-square is adequate. For larger sculptures use ¾" or even 1" pipe and a larger base, and for large heavy sculpture increase the base size accordingly and double up two thickness of ¾" plywood screwed and glued together.

Purchase a pipe flange of the appropriate size for the intended work and screw it securely to the plywood base just in from one edge (not in the center). Build upwards with straight pipe sections and connector fittings. Keep in mind that a pipe "el" or elbow at the top of a vertical section of straight pipe allows only a single horizontal continuation of the pipe. A pipe "T" allows the choice of two pipes extending horizontally, or one vertical and one horizontal. A pipe "cross" is by far the most useful fitting, because it has three sockets in addition to the one attached to the supporting pipe, and of course it won't matter if some of the attachment sockets are unused.

With a good assortment of crosses, tees, elbows, and straight sections of different lengths, the armature can be built in whatever direction is necessary, with branches extending into the sculpture wherever support is needed. Some sculptors build the armature and sculpture simultaneously, which gives more opportunity for changes and adjustments in the form. The pipe frame essentially serves as an exoskeleton behind the sculpture. With a good collection of pipe and fittings, you can support almost any size or shape of solid clay sculpture.

With any system for clay sculpture, the pipes, dowels, or sticks must be removed as the clay begins to stiffen. There are several options at this point depending on the size and shape of the sculpture. If the form can be supported with temporary external props while you remove the internal skeleton, you can allow the sculpture to reach medium leatherhard before you cut it into sections. If supporting the soft clay form with temporary props would be especially precarious or risky, start at the top removing the internal skeleton components and disassembling any external support frame piece-by-piece. Cut the sculpture into manageable sections as you go, setting them on foam rubber or some other soft surface to avoid damage until they reach leatherhard stage.

Once a solid-built sculpture has been cut into manageable parts, the individual leatherhard pieces are hollowed with trimming tools and scrapers out to give a reasonable wall-thickness. Keep the pieces under plastic to maintain them at the medium-leatherhard stage. Once all the pieces have been carved out, score all the mating surfaces. Begin reassembling the sculpture, applying slurry to each joint as you go. Depending on the type of sculpture, it may best be reassembled standing up vertically, or resting on an adjustable bed of foam rubber pieces. As described above, you can use wood props or suspended slings to provide temporary support as the sculpture continues to dry. With a very large sculpture, there's always the option to partially reassemble it, leaving the work in separate component pieces to be assembled with appropriate adhesives after firing.

There will inevitably be some altering or damage of the surface in handling, hollowing, and assembling the component parts. With that in mind it is wise to leave all detailed surface carving and finishing until the sculpture is reassembled. You'll have to do finish work along the seams anyway, and it's generally best to get the sections reassembled, cover the sculpture with cloth and plastic for a day to let the moisture content equalize, and then do all finish work before slow-drying.