

Vince Pitelka, 2016

### **Designing Tableware and Making/Using Foamboard Slump Molds**

This handout augments information in my book, *Clay: A Studio Handbook*. The book has good coverage of soft- and stiff-slab cups and covered vessels, but at the time I wrote the book, I had not discovered the system of using foamboard for slump/hump molds, and it is by far the most practical system for this kind of work. I know that some people prefer plaster for hump/slump molds, but having used both, I can only assume that those people have never worked with foamboard molds.

#### ***Designing Plates and Bowls***

When designing handmade tableware, remember that you are not confined to any particular shape. I occasionally see people going to a great deal of trouble to make slumped-slab plates look like they were thrown, and I always wonder why. On the other hand, rigidly square or rectangular tableware can be a little awkward. Instead, consider the squared circle, the oval or squared oval, the rounded triangle, the hexagon or octagon, and asymmetrical shapes. Think in terms of softened outward edges and corners rather than hard, abrupt edges and corners that contradict utility. Think about how to carry design features through a variety of different pieces of tableware – the dinner plate, salad plate, soup/cereal bowl, desert bowl, mug, and tumbler.

Consider the choice of whether or not to have a flared flange rim on a plate or bowl. Such a rim should never be level, because it will sag in the kiln, and that invariably looks awkward. Instead, a flange rim must flare upwards, both to keep it from sagging in firing, and for practicality in use.

There is strong evidence that the flared flange rim was originally designed specifically to allow servants to carry the plate or bowl without touching the food. From a humanistic, inclusive perspective that seems like a big negative, but on the other hand, a flange rim offers a wonderful area for decoration that is still visible when the plate is loaded with food. It really comes down to a matter of personal preference.

The “well” of a plate or bowl is the recessed area inside, often including a flat area in the center. Some plates and platters and many bowls have no flat area in the well, instead featuring a smooth curve across the inside surface from one rim to the other. For a dinner plate, one could argue that the juices of the various foods will all flow to the center, and thus perhaps a flat well is more appropriate. If so, think about the size of the well. Plates with very wide, flat wells in proportion to their overall size tend to look like commercial pizza trays or Styrofoam food trays. When making foam molds as described below, take the time to sand and shape the mold so that the flat part of the well is no wider than you want it to be. Don’t try to save time here. Spend as long as is necessary to shape the mold in order to get the profile that you really want.

Think about the depth and profile of the well in any plate or bowl. When slumping over or into a foamboard mold, you cannot achieve any sort of abrupt deep curves. Such a bowl would need to be made in multiple pieces. Consider the capability of the clay to stretch or compress. The maximum curve achievable with foamboard slump/hump molds is like a slope-walled bowl with an angle of

about 45 degrees between the average slope and the bottom plane. Any more than that, and the clay will usually buckle or tear during slumping.

The logic about a level bottom in a plate does not apply to bowls. Bowls are almost always most pleasing when they feature a smooth curve from one rim, down across the bottom, and up to the other rim with no level area in the bottom. That means more sanding on the hump mold, especially in a large-diameter serving bowl, but it will pay off in the finished product.

In designing tableware be sure to carefully consider shrinkage. The average cone 6 or cone 10 stoneware or whiteware body will shrink between 12% and 16% overall.

### ***Foamboard Molds – The Material***

Rigid foam insulating board is an ideal material for making slump- and hump-molds for slab dinnerware. This material is available from any large building materials center, including Lowe's and Home Depot, but you will often find the best prices at the larger locally-owned places that cater to builders and contractors. Buy only the dense, smooth foamboard with no paper or foil coating on the surface. The good stuff will sometimes have a peel-off protective plastic coating. The most common types are blue or pink, but recently I have come across light purple and medium green. For this application never buy the white foam panels or boards often sold at hobby stores or in home improvement centers. The white foamboard is made of small spheres of Styrofoam compressed together, and when you cut, sand, or file it, the material just disintegrates, leaving a rough, unusable surface.

Rigid foamboard comes in 4' by 8' sheets in thicknesses from ½" to 2". The ½" is appropriate only for the very smallest plates or trays. The 1" thickness is good for most plates and platters. The 2" thickness is appropriate for large platters and for bowls. For obvious reasons, the availability of 2" foamboard is better in colder climates. If you cannot find the thicker stuff you may need to glue together several sheets. If so, get an appropriate adhesive in caulking-gun tubes and an appropriate inexpensive caulking-gun frame. Read the fine print to make sure that it will work to glue one sheet of foam to another. Some adhesives that work with foamboard only work when gluing against a porous surface, and the foamboard is not. Apply the adhesive in parallel lines several inches apart, place the second sheet on top, and weight it down with evenly-distributed objects like five-gallon buckets half-filled with water. Another good way to accomplish this is to lay smooth pieces of scrap lumber across the foamboard and weight them down with buckets or cinderblocks. The idea is to distribute the force evenly right out to the edge.. Leave the sheets alone for at least 24 hours for the adhesive to cure.

Bring a razor knife when you go to buy foamboard. Transporting full sheets of foamboard is very awkward, and under no circumstances should they ever be tied to the top of your car, because they will catch the air and snap into pieces. If you make a cut from one side, the board will easily snap in half – even the 2" board. Stand one 4x8 sheet vertically against a horizontal sheet and you can mark the halfway point on both sheets and cut them exactly in half. Of course you can cut the sheets down to whatever size fits in your car.

### ***Making Posterboard Slab Templates and Foamboard Slump/Hump Molds***

The terms slump-mold and hump-mold are often used to distinguish between molds you slump into, and molds you slump onto. They are all slump-molds, whether you are slumping into a recess or over a convex form. Of the two, slump over a “hump” mold, because you can add the foot ring immediately and it allows a broad range of overall diameters and flared rims from one mold, as described below. In order to have a flared rim when slumping into a mold, the mold must support not only the well of the plate or bowl but also the entire flared rim, and each mold is dedicated to one single size and shape of plate or bowl. I find the system far more versatile when slumping over a mold. My descriptions are all for hump-molds.

For a plate or bowl, always start out by making a posterboard template equal to the dimensions of the desired form minus any flange rim. In other words, if the plate or bowl has no flange rim, then the template will be the full size (remember to consider shrinkage!). If the piece does have a flange rim, then the template will represent the dimensions at the inside edge of the flange.

Draw the template free-hand or use ruler, compass, French curve, or any other convenient shape or profile. Some of the most satisfying shapes are produced by drawing a perfect circle or oval and slightly squaring off the sides, or drawing a square or rectangle and introducing slightly curved sides. Don't be afraid of doing this free-hand. Learn to trust your eyes. Some of the best slab-built dinnerware has a slight asymmetry that gives a quality of life and energy lacking in rigidly symmetrical forms. With posterboard or manila folder material you can cut out the template with ordinary scissors.

Trace the template shape onto a sheet of foam construction board of the appropriate thickness. To cut out the molds, you will need a saber saw with an adjustable foot. It will be best if it is equipped with a fairly fine tooth blade, and get the longest blade available in order to be able to do a 45-degree cut in 2” foamboard.

Always cut the foam with the saber saw blade angling inwards toward the center of the plate or bowl so that you are undercutting the shape you have traced on the surface. Keep in mind that for any decent saber saw, cutting foamboard is just a little more difficult than cutting air. In other words, you will feel almost no resistance, and it is very easy to get off the mark. When you start the angled cut from the edge of the foamboard, do so very slowly and carefully until you get a sense of what it is like cutting foamboard with a saber saw. Make a deliberate, conscious effort to keep the foot of the saber saw level on the surface of the foamboard. If you forget about this for even an instant, your cut can quickly go WAY off 45 degrees.

Extend the foamboard off the edge of the table or bench, and keep moving the foamboard so that the area where you are cutting is always hanging off the edge far enough that the saw blade never hits the edge of the table or bench. Stop the saber saw whenever you need to in order to reposition the foamboard, but keep the saber saw in place, and when you start it up again be careful to aim it carefully to continue the cut.

Once the piece is cut out you have only begun the process of making a good mold. The foam piece will have a sharp corner between the 45-degree angled sides and the flat bottom, and a sharp corner at the bottom of a bowl or plate is not especially practical or graceful. Unless you alter that

basic shape and sharp corner fairly drastically, your piece risks looking like the Styrofoam trays that fresh meat comes packaged in. The best way to round off that corner is with very coarse sandpaper, approximately 36-grit. Always wear a dust mask while sanding. As you sand, periodically hold the mold up against the light and look at it in profile to see what kind of curve you have achieved. Keep sanding until you are sure that you have the curve you want. As mentioned earlier, don't skimp on time here – take all the time you need to get the curvature you want.

Even with very rough sandpaper, the resulting surface on the foamboard mold will still come out fairly smooth, and whatever roughness remains will help prevent the clay slab from sticking to the surface of the mold. With that in mind, give at least a light sanding to all surfaces of the foamboard that will be in contact with the clay.

For very large slump molds intended for big platters or serving bowls, sanding the foam is very time-consuming, and too often people settle for less of a modification of shape than they desire. When that is the case, you can use an electric orbital sander or an angle grinder with a sanding disk. The orbital sander will remove the foam much faster than hand sanding, and the angle grinder will remove it much faster than the orbital sander.

Recently one of my students attempted to use a recycled satellite dish as a slump mold, but found that it had far less curvature than she was looking for. She made a slump mold for a round 32"-diameter platter about 8" deep. Hand sanding to achieve the desired lens-like curvature would have taken many hours. Instead, we placed the mold curved-side-up on a pottery wheel outside, placed several bricks on top in the center to hold it down, and she went after it with an angle grinder with a sanding disk. It took five minutes to get the curve she wanted.

Sawing and sanding the foamboard will produce volumes of obnoxious Styrofoam particles and dust that should not be unleashed into the environment. The simplest solution is to just vacuum up the particles after sawing, and/or to sand your molds near the nozzle of a running shop-vac. This works very well even in the case of the orbital sander or angle grinder.

### ***Using Foam Slump/Hump Molds; Making Concentric Template Sets***

Trace the template onto a slab. Cut out the slab, drape it over the mold, and gently work the edges down so that it conforms to the mold. Notice that the curvature of the slab diminishes its rim diameter, producing a bowl or plate that is smaller and shallower than what you had originally envisioned. That shape might still be useful for some applications and it serves as a learning experience. Now go back to your template and lay it on a larger piece of posterboard. Set an ordinary compass at a ½" span between the metal tip and the pencil tip, and trace around your template, holding the metal tip against the edge of the template, so that the pencil draws a line ½" out from the template, creating a new form exactly 1" larger overall (½" larger all the way around). Cut out this template, and then trace and cut a slab. Drape it over your hump mold, gently work the edges down to conform to the mold, and see where the edge reaches. If the design is a plate without a flange rim, the piece cut from the second template might just barely cover the slump mold.

If you want plates or bowls with a flared flange rim, take the second template, and repeat the same process with the compass, creating a third template, and then repeat it again creating a fourth

template. The third and fourth templates will create slabs large enough to create flange rims of different widths, and you might decide to make even more templates in order to get a wider flange rim.

In slumping the slab over the mold when a flared flange rim is desired, it is imperative that you not push down against the clay excessively right next to the mold, causing the rim to be completely level, for the simple reason that it will likely warp and sag in the firing. With practice you will determine how much pressure to apply to get the clay to conform to the mold and still flare out against the table or board to create the desired flare angle in the flange rim. You will discover that a 1"-thick foamboard hump mold will be adequate for a plate without a flange rim or with a narrow flange rim, but for a plate with a wide flanged rim you may need a mold that is 1 ½" thick (achieved with layers of 1" and ½" foamboard glued together).

It is imperative that slabs be slumped over the molds as soon as possible after rolling in order to minimize the chances of cracking. If necessary, moisten the slab with a spray bottle, but never slump a slab when there is visible shiny moisture on the surface, because that will increase the chances of cracking. For best results, if a slab has been sitting for any period of time, re-moisten and then roll aggressively with a rolling pin to remobilize the platelets and water layers in order to minimize the chances of cracking.

This system is beautiful in its simplicity and immediacy. You can be as exacting or free-form as you wish in creating the templates, depending on your inclinations. Once you have drawn a template, cutting and sanding a foamboard hump mold for a dinner plate takes fifteen or twenty minutes at the most, and you can immediately start slumping slabs. Anticipating the choices of rims, it might be a good idea to start off by making the full set of four or five templates in ½" increments.

### ***Making Templates for Matching Dinnerware***

To carry this concept even further, when setting out to make matching pieces of tableware, after you come up a shape you like, start off by making a small bowl template, and then just keep making templates of increasing sizes in ½" increments until you get to the largest one you think you'll need for a serving platter, producing a continuous series from perhaps 6" across up to 14" or even 16" across. From that series, you can simply choose the sizes you want to use to trace the slump molds for your desert bowl, soup bowl, salad plate, dinner plate, serving bowls, and platters. This approach is especially practical when making complex shapes such as a hexagon or octagon, or with asymmetrical shapes that would otherwise be difficult to reproduce in multiple sizes.

If you find yourself needing a smaller template than one you have already made, simply trace a copy of that template onto a piece of poster board, cut it out, and then use the compass in the opposite direction. Hold the metal tip against the outer edge of the template and follow around the edge, drawing a line ½" in from the edge of the template. Cut off the ½" margin and you have a template 1" smaller overall.

### ***Slumping Slip-Decorated, Laminated, or Impressed Slabs***

It is not the intent in this handout to cover the full range of possibilities for decoration on slumped forms, but it is important to point out that much decoration work can be done on a flat slab, which can then be slumped over a mold. The slab can be impressed using bisque-stamps or any other

material or tools that produces an interesting impressed pattern or texture. In this case, the impressing should be done immediately with the fresh slab, and after impressing the pattern or texture the slab should immediately be slumped over the mold to minimize chances of cracking. As long as only gentle pressure is applied in getting the slab to conform to the mold, the impressed pattern or texture will not be damaged.

Slip-decoration can be applied to a fresh slab and left to stiffen just until the surface is no longer tacky at all – in other words, when it has reached plastic clay consistency. The slab can then be cut and slumped in a normal fashion without ruining the slip imagery. Keep in mind that for some slip techniques it would only make sense to do the decoration after the slab has been slumped and the plate or bowl has stiffened a bit. For slip-marbling and feather-combing, it usually makes sense to do the decoration on the flat slab and then slump it when the decoration has stiffened sufficiently.

Colored clay patterns may be laminated, sprigged, or appliquéd onto the surface of a slab, rolled firmly to assure attachment, and then the slab may be slumped as described above. Again, the colored clay additions should be done to a fresh slab, and then it should immediately be slumped to minimize chances of cracking

### ***Adding a Foot Ring***

Personally, I think that slab-built platters, plates or bowls without a foot ring look unfinished, and/or imply that the maker took the easy route. A foot ring elevates the piece slightly, creating a nice shadow beneath it, and the piece almost always benefits aesthetically from that increased sense of buoyancy.

It is not at all difficult to apply an excellent foot ring, and the hump-mold system is ideally suited. When slumping into a slump-mold, the foot ring cannot be added until the piece can be turned over at the leather hard stage, leading to frequent problems from cracking. With the hump-mold system, you can add the foot ring immediately, and since you are joining wet clay to wet clay, problems with cracking or separation are almost completely eliminated.

Once you have slumped the slab to your satisfaction, score the path of the intended foot ring. Make the foot ring exactly echo the outer shape of the plate – that is always most satisfying from an aesthetic point of view, and usually most functional as well in terms of preventing warping in the firing.

The foot ring should always be placed exactly at the outer edge of the flat portion of a plate or bowl - right where the well of the plate or bowl starts to curve upwards. It should never be spaced in further under the well of the plate or bowl, because if the level part of the well extends out beyond the foot ring it will almost certainly slump in the firing.

It is a worthwhile consideration that a large bowl or platter with a continuous curve across the bottom can have a fairly small foot ring. In such a case, make sure that the foot ring is tall enough so that the center underside of the plate or bowl is still at least 1/8" from the surface the piece is sitting on. This will allow you to glaze that surface without any fear of it touching the kiln shelf.

Dinner plates or platters that have a large-diameter level well should have two or more concentric foot rings to keep the center of the plate from slumping in the firing.

You can create the stock for making foot rings either by rolling a small-diameter coil very evenly, or by cutting a long thin strip of fresh slab. In either case, apply slurry liberally to the scored area, press the foot ring gently in place, join the ends, and then paddle it gently with a small wood paddle to level it and help it join to the surface. If you wish to further blend and shape the foot ring, hold a damp sponge between two fingers and drag it along over the coil, consolidating and shaping the cross section of the coil and sealing the edges down to the slab to whatever degree you wish. I generally do not apply much pressure, because I like the coil to appear distinctly separate from the plate or bowl. I use the sponge just to remove the excess slurry.

When you add the foot ring, if have done or are planning to do slip-decoration on the upper surface of the piece, consider painting the whole underside or the area within the foot ring with slip. That way, if you sign the bottoms of your pieces it can be done as sgraffito. Some of the most interesting ceramic pieces often have some surprise decoration on the bottom, and any vessel with a raised foot offers special opportunities for such decoration.

When the piece reaches the leather-hard stage you can Surform the foot ring if necessary to shape or level it. Consider cutting notches in the foot ring in order to create the impression of separate raised feet, but do not cut the openings so wide as to leave significant unsupported areas that could warp in the firing.

### ***Finishing the Outer Edge of the Slab***

A square-cut edge on a slab plate or bowl usually looks mechanical and unfinished. Angling the edge in either direction makes a huge difference, and the simplest way to do this is with a paddle or Surform tool at the leather-hard stage. Trust your eyes. You don't need any sort of gauge.

In thrown form, we often create a rim that is slightly thicker than the rest of the piece. The same thing can be accomplished in slab-built form in several ways. The simplest approach is to gently paddle the leather-hard rim, which will slightly flare it in one direction or in both directions, depending on how you work the paddle. You can paddle it so that there is a single angle, with the slight flare extending either upwards or downwards, or you can paddle it in both directions, creating a double bevel, with slight flares extending in both directions. This can create an especially nice effect in the way it holds a little more glaze next to that slightly-flared edge.

For a thicker, bolder rim, add a thin coil of clay or a narrow strip of thicker slab to outer edge of a plate or bowl. This should be done as soon as the piece has stiffened slightly. Set the slump mold on brick or other raised pedestal, trim or Surform the outer edge of the slab, and score the contact surface. Roll a fresh coil or cut a strip of thicker slab, add liberal slurry to the scored surface, gently press the coil or strip in place, and compress gently with a small paddle. Don't worry about the details of the rim at this stage, because you will be able to shave it down with a Surform when it is leather-hard. Cover the piece and let the moisture equalize between the slab and the fresh coil or strip.

Very sharp “fresh cut” corners are usually unattractive and awkward in use, and rounding them even slightly makes a big difference. If you want to keep them fairly sharp, just soften the corners with a damp sponge. If you want to round them more than that, use a Surform tool, but don’t “finish” all the life out of the piece. I find that those learning the process are often rather obsessive about finishing a piece, and tend to see all evidence of the process as flaws. Those who have more experience in ceramics often celebrate the visible evidence of the process as expressive marks that speak of the movements of the potter’s hands and of the tools that were used in the process. Just think about this as you are finishing your pieces, and allow yourself to take chances and thus make new discoveries.

### ***Adding Incised Line Details***

When throwing a plate on the wheel, it is a simple matter to hold a modeling tool against the rotating piece to create an incised line wherever it is desired. It’s a little more difficult on a handbuilt slab plate or bowl, but here are some tricks to make it easier, and concentric lines on a piece that is not round can have even more visual power. Such incised lines can be done simply to catch the glaze or oxide stain, or they can be done as sgraffito, incised through a leather-hard layer of contrasting slip.

Make a series of small plates to use as test pieces. Experiment with holding an incising tool (a cheap ball-point pen works great) in your hand and incising a line parallel to the rim, using the extra fingers of the same hand to follow the rim of the plate and control the placement of the line. With a little practice, you can do this with considerable precision, either with a single line, or with a series of parallel lines concentric with the rim.

On a piece with a flared flange rim, it can be a pleasing design feature when an incised line separates the flange rim from the well of the plate or bowl. The line is generally located at the inner edge of the flange rim, right where the clay curves downward into the well of the plate or bowl. There is an easy way to achieve this. Once the bowl, plate, or platter is leather hard, remove it from the slump mold and turn it right-side-up. Select one of the smaller templates from the set for that particular slump mold and place it on top of the piece to serve as a guide to draw and then incise this line. Choose whichever template works best. The templates in the set are all concentric, so if the chosen template is placed carefully, the resulting incised line will be perfectly concentric with the rim of the piece.