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## ***A Practical Guide to Clay Studio Design, Setup, and Operation***

Facing all the realities of designing, setting up, and operating a ceramic studio can be daunting. Ceramic equipment is expensive, and in the smaller details of a well-equipped studio are a myriad of things to consider. This document explores general issues of concern in initial studio design and setup and in ongoing day-to-day studio operation.

### ***Studio Design and Setup***

Above all else, envision a studio in which you will be happy and productive. There is no way to standardize or quantify all the aspects of studio design which contribute to ongoing creative inspiration and personal satisfaction. These things are subjective and individual, and you must carefully evaluate your own needs. Making a living from work created in your own studio is enormously rewarding, but it involves a lot of hard work. Careful planning in studio design and setup can contribute enormously to your chances of success. One of the most important aspects of studio design is that it should correspond to who you are as an individual. Don't just copy someone else studio setup. Tailor it to your own needs, tastes, and objectives. I hope the information in this document will be useful to you, but take it as a set of suggestions, and adapt it to fit your needs.

When approaching studio design, take a thorough inventory of what is most important to you. Well in advance, keep a notebook or journal, and enter all your thoughts diligently, regardless of how trivial they might seem at the time. Carefully consider issues such as natural and artificial lighting, directional exposure (north light, south light, etc.), view from windows, exterior noise, etc. If music is important to you, plan on installation of a high quality sound system with extension speakers in all parts of the studio. Too many people these days settle for small Bluetooth speakers connected to their phone. Far better to get a Bluetooth system that accommodates extension speakers so you can surround yourself with quality sound. To some this might seem like a luxury, but for many successful studio artists, it is one of the most fundamental necessities.

### ***Concerns in an Existing Structure***

When shopping for studio space to rent or purchase, carefully consider all of the above, plus insulation and climate control, availability of hot and cold running water, viability of installing proper sink traps to isolate clay/glaze residue, viability of installing kiln vents and/or spray-booth vents, adequate electrical service for kilns and equipment (single-phase or three-phase), adequate electrical wall (not floor!) outlets for all your equipment (without the use of extension cords when possible), availability of natural gas or propane if needed, and unrestricted 24-hour access. As much as possible, don't limit the kind of work you can do by the size and location of your studio. If you want to do salt, soda, or wood firing onsite, make sure you find a location where those processes will be permitted. To a certain extent, this applies to any sort of gas kiln. In any area with strict building codes, installing a gas kiln indoors will mean enlisting the services of a combustion engineer to design the safety and exhaust systems, and that will get into very big bucks.

### ***Studio Size***

The overall size of the space depends on your level of production, the scale of your work, the amount of equipment and supplies you must accommodate (dependent on local availability of supplies), the variety of ceramic processes you use, and whether or not you will be sharing the studio with employees, students, or other artists. Carefully consider the size and shape of space in which you like to work. Some people like a small cozy work space for particular aspects of the ceramic process, while others might feel claustrophobic in such a space. When I was a full-time production potter, I had a cozy 10x14' room where I did clay preparation and throwing, and two 16x16' rooms to accommodate drying wares, glazing, and the kilns. When puging and weighing out the next day's clay and when throwing, I only had to heat that one little room. When we built that studio, I moved from a 10x10 space that had accommodated everything but the kiln. The new space felt huge. Within five years, it felt cramped. There's an old cliché saying, "Work expands to fill the time allotted to it." In designing studios, it could accurately be said that "Work expands to fill the space allotted to it." Or to put it another way, "You will do the work you have the space to do."

For more information on studio size, see the section below on specific kinds of studios.

### ***Plan for the Future***

Whenever planning a studio, whether rental space, purchased space, or new construction, always look to the future, anticipating possible directions your work may go. Renting, buying, or building a space larger than you need is much easier than moving or adding on later. An excellent solution is to buy, rent, or build a large studio and rent out part of it. This might mean installing partition walls to maintain your privacy, but that will be far more cost effective in the long run. All over North America you can find situations where an ambitious and visionary artist took over an old retail or industrial facility and converted it into studio space for his or her personal use and for rental. In many of those situations, these facilities become a significant part of the local art culture and business economy.

### ***Equipment Purchases***

It is easy to go overboard in equipment purchase. Don't buy things you don't need, but when you really do need a piece of equipment, try to get something you'll grow into. Don't go overboard, but think carefully about realistic goals and expectations. Buy high-quality tools and equipment, take good care of them and maintain them properly, and they will last you indefinitely. If you are a resourceful, self-sufficient type, take some classes and pick up welding and fabricating skills. I worked as a mechanic and welder before I became a potter, and I built my own vacuum-deairing pugmill, Shimo-style ring-cone wheel, ware-carts, 100-cubic-foot production car kiln, and numerous other tools and fixtures. That kiln was appropriate to the scale of my studio operation, but for most independent potters, a very large kiln means less firings. Unless you are doing high production like I was, a big kiln can slow the learning curve.

## ***Studio Lighting***

Lighting is among the most frequently overlooked aspects of studio design, and we've all seen poorly-lit studios or workshops where it is hard to see what you are doing. You need good lighting to do good work, but it is also among the most important safety considerations. Carefully plan the type, amount, and distribution of light. The quantity and quality of light has a strong impact on your psychological and emotional state, and thus your creativity and productivity. The availability of good natural light is always an advantage. While painters and sculptors usually prefer northern window exposure to provide indirect light, in a ceramics studio you may specifically want direct sunlight, depending on personal tastes, climate, and time of year. Southern window exposure will admit a great deal of sunlight, much of which will turn to heat within the space. A wide roof overhang above south-facing windows will admit sun in the winter and shade the windows in the summer.

It makes sense to take maximum advantage of natural lighting, but you must of course provide ample artificial lighting for nighttime or when sunlight is inadequate. I like to equip a studio with a range of different light sources that can provide variety of atmosphere and environment. The standard swing-arm desk lamps are inexpensive and very convenient, and may be installed in many work areas for more intense localized light. The best overall lighting currently available for studio use is LED tube panel lights or shop lights. They are the LED replacement for florescent tube lights, and if you already have florescent tube lights, you can get LED tubes that fit the existing fixtures and work with the current florescent ballast.

In considering studio lighting, you should be familiar with the Kelvin scale of color temperature. All light sources have a Kelvin rating. At the lower end of the scale from 2000K to 3000K, the light produced is considered "warm white," and is generally yellow-white in light quality. This is what many people prefer for ambience in living spaces, but it may not give the best quality for studio lighting. Temperatures between 3100K and 4500K are referred to as "cool white" or "bright white." Light bulbs within this range will emit a more neutral white light, usually the best choice for studio lighting. Above 4500K is what is considered "daylight" color temperature. That might seem an attractive choice for studio lighting, but artificial light 4500K and above gives off a blue-white light that I find quite unpleasant. You may have noticed such blue-white light in a lot of big-box stores. They make me want to finish my shopping and get the hell out of the store. Maybe that's the idea.

Have plenty of lighting, and make it as controllable as possible. A bright working space is uplifting and cheerful, and during long dim winter months the value of excellent lighting cannot be overstated. On the other hand, localized pools of light in an otherwise dim space may be preferable for certain conditions or operations as long as safety doesn't suffer. Aside from portable lamps and desk lamps, always make sure that ceiling fixtures are wired to code, and controlled by wall switches. Avoid the use of extension cords whenever possible.

### ***Wiring***

Be sure to incorporate smoke/heat alarms in every room of your studio. Make sure that all studio wiring meets local building and safety codes. Unless you are a competent electrician, employ the services of one. If your studio is on the same property as your home, it is advantageous to have a separate electrical service and meter for the studio to facilitate separating domestic and business expenses. If your local utility company will not install a separate service on the same property, you can have an electrician install a meter on your studio panel to isolate studio electrical usage.

If you can get a separate electric service, make it a 200-amp panel. If you are splicing off the house electrical service, put in a 100-amp sub-panel. Install plenty of electrical outlets throughout the studio, always in the walls and never in the floor. All 220-volt ceramic appliances such as pugmills, mixers, and kilns should each have their own dedicated electrical circuit with a circuit breaker in the main electrical panel. If you have a pugmill or clay-mixer in a studio where children and visitors are occasionally present, install key-lock switches on those pieces of equipment to positively lock them in the off position. Accidents involving pugmills and clay-mixers are usually truly horrific.

Keep in mind that all electric kilns except for the smallest test kilns normally require 220-volt circuits. A small toploader electric kiln of three or four cubic-feet can be served with a 30-amp 220-volt hookup, but a standard seven-cubic-foot toploader kiln requires a 50-amp circuit. If you have reason to unplug your kiln, install an outlet to accommodate the plug. If you do not need to unplug it, have it hardwired. That's always the safer and more reliable hookup.

If your electric kilns are located anywhere indoors, be sure to incorporate proper kiln-vent systems. Use the direct-vent systems made by Bailey, Skutt, and others that draw fumes directly from the bottom or lower side of the kiln. These have been shown to be extremely effective in drawing off fumes, while also giving more-even firings. They vent through the wall using a normal clothes-dryer vent fixture.

### ***Plumbing***

In designing a new space, or remodeling an existing space, carefully consider water, gas, and waste plumbing needs. If the studio space is large, consider placement of several sinks, with proper traps installed in every sink to retain the sediment. See the handout on my website about building inexpensive and very effective two-stage sink traps.

Remember that even with sink traps, waste plumbing from a ceramic studio cannot go into a septic tank and leach system. Clay does an excellent job of closing pores in soil, and is used for sealing agricultural holding ponds. With even the best sink traps, the finest clay particles get through the trap and will destroy your leach field. Better to have a dedicated gray-water drain and settling pit that can be periodically cleaned out, completely separate from your domestic septic system. For a stand-alone studio that's not on city sewers, that might mean two systems – a standard septic tank for the bathroom, and a gray-water system for the studio sinks. For any studio on city sewer,

simple two-stage plumbing traps on the sinks are adequate, and whatever gets through the traps will not harm the city sewer system.

### ***Specific-Use Areas***

When planning a studio space, consider all the specialized processes you employ, and the kind and amount of space each requires. Draw multiple floor plans in order to best lay out these areas, but at the same time, try to keep the space as flexible as possible to accommodate the evolution of your work and the possibility of introducing new processes and equipment. Think about the logical flow of work through your studio. Common divisions in studio space might include a clay storage/processing area, throwing area, handbuilding area, ware storage, glazing/decorating area, kiln room, fired ware storage, and space for packing and shipping.

### ***Clay Storage/Processing Area***

Unless your work requires very specialized clay that must be mixed from scratch, it generally makes most sense to use boxed clay. It's always cheaper purchased in quantity, so clay storage space is an important consideration. That said, you'll save a lot of money if you also have a small clay-recycling operation. Many studio artists simply discard their scrap clay rather than dealing with recycling, but this wastes a lot of money over time. Larger studios usually require more extensive accommodations, especially if mixing claybodies from raw materials. In an area where freezing is not a problem, clay storage and mixing can easily be accommodated outside under a shed roof.

### ***Wedging Table***

A solid, immovable wedging table is pretty much a necessity in any clay studio where throwing and/or handbuilding take place. Adapt a small, sturdy table or build one, and in either case, attach it securely to the wall. A  $\frac{3}{4}$ " plywood top covered with canvas is a very good wedging surface. If clay accumulates beneath the canvas and starts to create dust, flood the canvas with water, let it soak for a moment, and soak it up with a big poly sponge. That will remove the clay from beneath the canvas. Another option is to install raised sides at least 2" tall and cast concrete in the recess, carefully smoothing the surface. This provides an absorbent surface without the risks of plaster. Avoid plaster wedging surfaces.

The height of a wedging table is critical, because effective wedging should rely on the powerful muscles in your back and torso rather than the muscles in your arms. Hang one arm relaxed straight down at your side with the fingers curled loosely. The level of your knuckles is the level the wedging table should be in order to make best use of your own body geometry.

### ***Throwing Area***

Throwers spend long hours at the wheel, and it must be a comfortable environment. Consider this carefully. As a full-time studio potter early in my career, I placed the wheel in the corner of a small, easy-to-heat room, facing a large corner window looking out upon the back yard and orchard. Above the wheel were several tiers of shelves, low enough to leave the view unobstructed. Clamped to those shelves were two swing-arm lamps, providing infinitely adjustable lighting from

both sides. All my tools and supplies were accessible on the shelves. Above and to either side of the window were good quality stereo speakers. To my right was a wedging table where weighed clay balls were kept under plastic, ready for throwing. Sitting at the wheel I could easily reach everything I needed, and could place completed wares on a ware cart off to my right. It is not really necessary to have everything so close at hand, but at the least you should carefully evaluate your needs and comfort level, and design your work area accordingly.

### ***Handbuilding Area***

An efficient handbuilding area requires sturdy work-benches or tables. If you work with slabs, you do not want any deflection of the table surface, and for a homemade workbench or table, a double-thickness of  $\frac{3}{4}$ " plywood makes an excellent work surface. When designing table or bench-height, consider the scale of your work. If most of your work is large, you may be best served by a much lower working surface. Also, an ideal table-height should allow you to work either standing or sitting at a stool. Have several heights of stools available. It is advantageous to change your working position frequently.

For most art/craft media, table surfaces need to be tightly sealed and as inert as possible. For us, that's problematic, because clay releases most effectively from a porous surface. Plaster surfaces should be avoided whenever possible, as they suck too much moisture from the clay, and chips of plaster will contaminate your clay and cause lime pops, ruining the ware. Clay sticks to shiny and sealed surfaces like Formica or varnished/painted wood. Untreated exterior plywood holds up very well, and the porosity allows clay to release from the surface easily. My favorite work surface is exterior plywood covered with heavy canvas (at least 10 oz. canvas duck), stapled in place under the rim of the table. With proper care, the canvas will last indefinitely, and it provides a very nice working surface that clay does not stick to. As with canvas-covered wedging surfaces, clay will work through the canvas and accumulate beneath, and will eventually send up a cloud of dust every time you slam a lump or slab of clay against the table. That's a safety hazard, so as soon as you detect dust under those situations, flood the table surface with water, let it soak for a few minutes, and soak it up with a sponge. Repeat that a few times and you will have removed all clay from beneath the canvas.

It's often advantageous to have drawers beneath the table off to one side to accommodate your favorite tools. School surplus or used business furniture outlets are great sources of small multi-drawer metal cabinets that will fit under the table or bench. If it won't interfere with the construction of your work, an overhead rack is also a great idea, much like a pot-rack above a stove.

### ***Damp-Box and/or Dry-Box***

For the private studio a damp-box and/or dry-cabinet may seem a luxury, but both can be easily built from scratch. The need for these units depends largely on the availability of space and the way you work. If you work involves components that are assembled leather hard, then a damp-box

can be an enormous advantage, allowing you to easily maintain the moisture level in individual components until you are ready to assemble.

For my own studio practice, I have found that large lidded plastic storage bins work much better than a stationary damp cabinet. Place several thicknesses of cloth in the bottom to wick up any moisture that condenses on the walls and drips down. Don't cast plaster in the bottoms, because that just makes the bins cumbersome to handle and risks plaster contamination of the clay. With cloth, you can use dry cloth or dampen it to any degree depending on what whether you want slow drying or retained dampness. With damp plaster all you can do is accept the current level of dampness or make it wetter.

If you live in a humid climate, then a dry-cabinet might be essential to dry your work in a timely fashion. The dry-cabinet at John C. Campbell is the best I have seen. It accommodates a full-size Brent ware cart, and has a small baseboard heater mounted at the base of the rear wall and an adjustable thermostat just inside the door. Do not install a fan in a dry cabinet, because that will encourage uneven drying. Do not over-ventilate a dry box, because again, that will result in uneven drying and thus warpage and cracking. When damp wares are in the drying cabinet, the atmosphere should initially become very humid as the temperature elevates. That will result in very even drying overnight.

In some cases, it is possible to simply regulate the atmosphere in an entire room to control drying rate. In my production studio the throwing area and greenware storage/glazing area were in separate rooms. When I was in a throwing cycle, I would control the environment in the other room accordingly. In summer on the West Coast, things tended to dry too quickly, so a cheap cold-mist humidifier took care of the problem. I was doing a lot of slip-trailed and feather-combed plates, platters, and bowls, and that presented special challenges. It would be awkward trying to cover those wares or fit them in a damp-box. Instead, I placed them on ware carts in the other room, turned on the cold-mist humidifier, and then splashed a bucket of water across the concrete floor. That instantly raised the humidity. The humidifier maintained fairly high humidity, and the slip-decorated platters stiffened slowly with no problems. In the winter, when things would dry too slowly, a dehumidifier did the trick. East of the Rockies, the situation would likely be exactly the opposite, dry in the winter and humid in the summer.

### ***Ware Storage***

This is a common bottleneck in studio operation. Dependent on your normal cycles of creating and firing work, you must be able to gracefully accommodate the necessary quantities of greenware or bisqueware without sacrificing every square inch of horizontal space in the studio. Much work can be lost due to excessive and careless crowding of greenware before the bisque-firing. I have taught workshops in every kind of studio you can imagine, and the studios with ridiculously over-crowded shelves far outnumber the ones with abundant available shelf space.

I suppose there is no such thing as a studio with too much shelving, but one does not want to sacrifice space needed for other purposes. My favorite solution is to equip the studio with plenty of sturdy ware carts. Rather than viewing them solely as fixtures for efficiently moving wares from one place to another, think of ware carts as moveable shelving. In some cases they can be aligned in banks to give the most effective block of storage, like the stacks in a library. It would be easy to think of extra ware carts as taking up too much space, but the opposite is true because they make the space much more flexible. At times when the ware carts are not needed, they can be stored in the kiln area away from the primary work areas.

When throwing or handbuilding, ware carts can be placed close by to accept completed work. When glazing they can be brought to the glazing area, and then to the kiln. After firing, they can be used to receive and store wares prior to shipping or delivery. When planning ware carts, think of the module which will best fit your studio space and your needs. Design the overall height so that they will pass through doorways and beneath overhead obstructions even with wares on the top shelf. At the Appalachian Center for Craft we had dozens of very sturdy ware carts built when the facility was created in the early 80s. Most of the ware carts were about 5' tall and thus would pass through doorways with no risk to even large forms on the top shelf. But in the kiln room were four very large ware carts barely able to fit through doorways. They were primarily intended to receive wares ready for bisque or glaze firing, but inevitably were sometimes rolled into adjacent studios or the glazing room. I cannot even estimate the number of times someone rolled one of those huge ware carts through a doorway, neatly skimming any wares off the top shelf and sending them crashing to the floor.

Ware carts can be built from scratch with angle iron to receive plywood shelves, but as an alternative, search in any metropolitan area for businesses that sell used store fixtures. Store display shelving and the vertical units they lock into provide excellent studio shelving and also the fundamental elements for good ware carts that allow shelves to be placed at whatever height is needed. When setting up my studio, a local scrap yard had purchased all the store shelving from the old Bonanza Supermarket in Eureka. For a bargain price, I was able to equip my entire studio with abundant shelves and build large ware carts. The same scrap yard allowed me to cut the wheel assemblies off scrapped shopping carts.

### ***Glazing/Decorating Area***

Small studios rarely have an area set aside just for glazing. A general work-space for handbuilding and other chores can be used for glaze-mixing and glazing, as long as adequate accommodations are made for glaze materials and the specific needs of glazing, such as spray equipment, etc. If you dip your wares in five-gallon buckets of glaze, consider constructing a low bench to accommodate these buckets, so that the rims are at a comfortable level for dipping.

If your work involves extensive surface decoration, you will most likely want to make special accommodations for decorating. Do you like to do this work at the wheel, at a bench, or in a comfortable chair? What is the best working height for the kind of work you do? What is the most



relaxing position to maintain while you are doing this work? What keeps you attentive and productive?

If you spray glazes, see the PDF handout on my website about making an inexpensive an effective spray booth that folds out of the way when not in use.

### ***Kiln Area/Room***

Obviously, any kiln requires particular spatial accommodations. The specifics of kiln installation are discussed in my book, *Clay: A Studio Handbook*, but in general it is best to place the kiln off by itself, always with appropriate ventilation, in a separate room if possible. This will protect the kiln from damage and will protect you from fumes. Extra space within the kiln room can be used for firing supplies and storage of unfired and fired glazed ware.

In planning a kiln room, anticipate your firing needs now and in the future. As mentioned above, have the space set up with ample heavy-duty electrical circuits for any kilns you anticipate, and equip all electric kilns with proper kiln vent systems. See the section above on studio wiring.

In installing any gas kiln, make sure you accommodate not only the necessary ventilation, but also the necessary ***make-up air*** to supply combustion. In installing any kiln, be sure to maintain appropriate clearance from all combustible surfaces.

Any time a gas kiln is placed within a studio work-space, or in an enclosed kiln-room attached to a studio or home, the space should be equipped with appropriate smoke/heat alarms and a carbon-monoxide detector. It's always best if these devices are hard-wired into the building electrical system. They are inexpensive insurance when one considers the benefits on the rare occasions when there is a fire or a dangerous level of carbon monoxide.

Have a good fire extinguisher on hand properly mounted on the wall. If you only have one extinguisher in the studio, never install it in the kiln room or near the kiln. If the kiln causes a fire, you need to be able to get to the extinguisher.

### ***Space for Packing and Shipping***

For any commercial studio, packing and shipping can become a major chore. No professional ceramic artist wants to be doing these tasks, and in my experience this is where we most often hire our first employee. One of the best things to happen in the evolution of Railroad Stoneware was when I hired a young woman named Pam to do the packing and shipping. Pam had experienced a traumatic brain injury as a child, and the effect was a little like a lobotomy. That sounds terrible, but Pam was always relaxed and pleasant. When working, she'd always sing along with whatever music was playing. She did an excellent job packing my wares and conscientiously filling out the packing slips, shipping labels, and shipping inventory. Customers complimented me on the packing. Pam took great pride in every part of the process and never made mistakes. The only thing I had to do was call UPS for a pickup, and it made me smile every time.

Regardless of who is doing the job, make the work of packing and shipping as easy and pleasant as possible. More of your work will arrive at its destination intact. There are many commercial packaging systems and products which may fit your needs. Make the necessary plans to accommodate them efficiently, with plenty of storage for packaging materials and empty boxes. As in other cases, the table or bench space needed for packing and shipping can be used for other purposes, with the packaging materials and equipment efficiently stowed above and/or below.

### ***Proper Packing and Shipping***

The following discussion addresses the kind of packing and shipping situations encountered by most potters, with a brief coverage of how to crate large ceramic pieces.

When transporting work yourself to a gallery or craft show, you can be quite casual about packing, dependent on the fragility of the work. Popular reusable containers include lidded plastic chests, banana boxes, vegetable boxes, and liquor boxes with cardboard dividers. The latter often work great with tall pieces placed in the partitioned compartments with no other packing material at all. After all, those boxes are designed to work with glass bottles. Smaller pieces can be loosely wrapped in newspaper and stacked up in the partitioned compartments. When packing pieces in normal cardboard boxes, a wrap or two of newspaper usually does the job, but it is often advantageous to have sheets of packing foam or bubble-wrap to separate layers of wares in the box. Bowls or plates can be nestled with a sheet or two of newspaper between each piece, with cardboard or bubble wrap separating adjacent stacks of wares.

Shipping ceramic work is an entirely different matter, and there are some standard guidelines which work very well. There are always exceptions, but for the most part these guidelines will meet the United Parcel Service expectations. In general, when packing ceramic objects, assume the worst in terms of handling during shipping. Expect the package to be rolled, kicked, and dropped.

The general rule with boxes containing multiple ceramic pieces is to isolate every ceramic piece from its neighbors with stationary, non-flowing packing material, and double box the whole group, with a 2" layer of packing material between the outer and inner box all the way around. In other words, the outer box should be 4" larger in all dimensions than the inner box. Jonathan Kaplan of the Plinth Gallery recommends using 12" filler flats, such as egg-manufacturers use for shipping quantities of eggs to restaurants and other businesses. These are two inches thick, easily cut to size, and provide an ideal means of filling that 2" space.

The best readily-available material for wrapping individual ceramic pieces is bubble-wrap. It comes in various bubble sizes, which determine the thickness of the bubbles as well. Bubble-wrap with small bubbles does not provide as much cushioning as larger bubbles. If you are separating individual tiles or plates in a stack, 3/8" or 1/2" bubbles may be adequate, but for most applications get bubble-wrap with 1"-diameter bubbles. Don't buy bubble wrap from big-box stores, U-Haul, or

the post office unless you only need a very small quantity in a hurry. As a business, you can buy packing/shipping materials from the big suppliers. They sell giant rolls for very reasonable prices. During my career at the Appalachian Center for Craft, I periodically bought a “double roll” of 1” bubble wrap. It came packaged in a huge plastic bag, and I’d have to unbag it before I could get the individual rolls through the door to the studio. Wrap each ceramic piece with bubble wrap, and tape securely with clear packing tape using a good heavy-duty tape-gun.

Another product that’s appropriate for some objects is single-face corrugated cardboard, which comes in rolls. For layering between tiles, plates, or other flat objects this material may be ideal. If you use this, keep the “stacks” fairly short, and wrap the whole stack in bubble-wrap and tape securely, so that the individual pieces do not move around at all.

For filling the space between the individual wrapped pieces or bundles, Styrofoam peanuts work well. If you are conscientious about greenhouse gases and landfills, use recycle peanuts from other businesses and/or get biodegradable ones. Make sure the peanuts fill all the spaces between the individually wrapped pieces, and always slightly over-fill the box so that it is compressed when you close and tape it. If the peanuts are not compressed, they can move around in the box along with the pieces they are supposed to protect. Stay away from recycled shredded paper. By the time you compress it enough to do the job, it weighs a ton. The customer pays shipping costs, and they will resent heavy packing materials. That’s bad for business.

Get a very good quality tape-gun, and purchase high-quality 2" packaging tape. Make sure the contact surfaces on the boxes are free of dust and dirt. Use shipping labels that make the address information easy to read, and print the address with a Sharpie. When packing in previously used boxes, always remove all evidence of previous packing labels, including any bar-codes.

***Do not write FRAGILE on boxes of ceramic wares.*** If your wares are properly packed it is unnecessary. Shippers do not want to see it on your packages, because it implies that the packaging is inadequate. In normal circumstances it will make little difference in how the packages are handled, and in the worst-case scenario it will offer something of a challenge to a disgruntled shipping worker.

In all cases use good quality boxes. Any professional ceramic artist/artisan who ships quantities of wares quickly gets beyond the stage of picking up empty boxes from the grocery store. If you can find a source for large quantities of recycled boxes of uniform size, then you may be able to use them effectively. If you regularly ship wares, it pays to have a system which works efficiently, without having to adjust and adapt with each packing job. For that you need quantities of uniform-sized boxes that work for double-boxing. If you cannot find a reliable source of used boxes, buy new ones. I did that for ten years while doing production work, and it was a bargain in time saved while packing.

If you ship wares regularly, contact your local UPS (or the shipper of your choice), set up an account and arrange for pickup from your studio or home. When you take packages to the shipper's depot, they are far more likely to question your packing methods (probably every single time you bring packages in to be shipped). If they pick up from your studio or gallery they will assume a much higher level of experience and competence.

### ***Shipping Large Ceramic Work***

For very large ceramic vessels or sculpture, cardboard boxes do not offer enough rigidity or protection. One solution when the size and shape is appropriate is to use recycled heavy cardboard shipping drums, which are available in a variety of sizes. For best results, use two drums inside each other with the above-mentioned 2" cushion between them. Pack the space between the drums with bubble-wrap, and cushion the ceramic object very well with bubble-wrap inside the inner drum. When you attach the lid, make sure it seats properly. Secure the band-clamp carefully, and make sure the latch is operating properly. Wrap a small wire seal in the provided holes in the band latching mechanism.

Large ceramic objects often require a custom wooden crate. The general approach is to use 1/2" plywood, but the plywood cannot attach to itself, because it has no structural integrity on the end-grain. Instead, attach a frame of 1" by 3" lumber to the first side you join, and screw the adjacent sides to this frame. All corners seams must have these reinforcing frames, including the upper edge of the crate, so that the lid screws to such a frame. Depending on the object being shipped, this reinforcing frame may be inside the crate or on the outside. A crate with the frame on the inside is easier to move around, but one with the frames on the outside leaves the inside unobstructed.

For very heavy sculptural objects, always incorporate skids into the bottom of the crate so that it can easily be picked up with a pallet-jack or fork-lift. For the largest, heaviest ceramic objects, you can construct the crate with a pallet as its base.

The crate should be lined with rigid foam insulation that supports the ceramic piece snugly. This may be accomplished with rigid construction foam, available in sheets of various thicknesses from commercial building materials supplier. It is easily cut with a razor-knife or saber saw, and multiple sheets may be glued together with silicone adhesive or construction adhesive. Another option is to use aerosol urethane foam. In that case, the piece is wrapped in a plastic trash bag, centered in the crate, and supported in place with minimal rigid foam props. The urethane foam is sprayed into additional plastic bags in the spaces between the ceramic piece and the crate so as to allow the individual segments of cast foam to lift out, facilitating removal of the piece from the crate.

### **Considerations for Specialized Studios**

Below is a brief discussion of particular concerns and issues found in different kinds of clay studios. It is intended only as a general guideline, and anyone planning a specialized studio should evaluate their own needs, and design accordingly.

### ***The Amateur or Hobby Studio***

For many people, clay provides a very satisfying avocation or hobby, and in that situation the primary concerns are convenience and comfort. In some cases, it may be most practical to do your claywork at a local school or cooperative studio. If such facilities are not available, or if you decide you are ready for your own studio, accommodations can be minimal, but they must be well-designed for convenience and personal satisfaction. You may be able to meet your needs with nothing more than a small electric kiln and a work table in the basement or garage. On the other hand, if the studio provides essential mental and emotional balance in your life, you may wish to allocate the time, money, and space for a larger studio.

When a hobby studio evolves into a part-time income producing-situation, then it's time to start gearing up. A part-time home studio can be quite small, but all of the things mentioned above should still be taken into consideration. Utilization of space can be maximized with multi-purpose work areas. For a potter, a fold-down table top over your wheel can be used for finish work and glazing work. Cabinets and shelves can be designed for maximum space efficiency within a very small area. For spraying glazes, check the PDF handout on my website that explains how to make a spray booth that folds out of the way when not in use, freeing up table space for other uses.

It is easy to be seduced by equipment purchases. Resourcefulness is a most valuable quality, especially in a compact studio, and with the right tools and equipment you can easily accomplish most tasks very inexpensively. Kilns are an obvious necessity, but it is important to purchase a kiln appropriate for your needs. See the chapter on "Kilns and Firing Processes" in *Clay: A Studio Handbook* for more information on kiln selection. Slab rollers are expensive, and you can make good slabs very efficiently with a good rolling pin. That said, if you are serious about slab-building, a slab-roller will quickly pay for itself. An extruder is a wonderful device, but unless your work involves components which cannot be made efficiently by other means, it is an unnecessary expense.

Day to day operation of such a studio is a simple matter, and for maximum enjoyment and peace of mind, things should be set up to make it easy to go work in the studio. As mentioned above, make things as convenient as possible. If you find yourself working in the studio in small doses between other responsibilities, it is essential that things be set up, ready to go. In such a case it is important to allocate a space specifically for studio use, with nothing else interfering with that use, so that you do not have to completely set things up and then clean things up every time you use the studio.

### ***The Professional Studio for an Individual Artist/Artisan***

For a full-time individual artist/artisan, the primary concerns in studio design and setup must be maximum efficiency, safety, and personal satisfaction. The three are inseparable. As mentioned, there is no standard for what is right. Think carefully about your own needs, and plan the studio

and the utilization of space to best serve those needs. Don't compromise at all when you can possibly afford exactly the space you want, because it will pay you back many times over.

As mentioned above, try to be generous in your studio accommodations, even if it means growing into the space. You can always rent out extra space in the mean time. During the planning process, as you anticipate the size of your studio, it is impossible to imagine how quickly you will fill the space. In a small facility, a little resourcefulness will allow you to make the most of the available space, but if your studio involvement continues to grow, it is inevitable that your productivity will suffer to some extent. I first became a professional potter in a 10' by 10' studio, with the gas kiln in a separate building 100 feet away. That little studio was a model of spatial efficiency, but I soon realized it could not accommodate the necessary growth to become a financially viable full-time studio operation. I built a new studio with a 10' by 14' throwing room, a 16' by 16' glazing room, and a 16' by 16' kiln/storage room. As I moved into the studio, I could not imagine utilizing all that space. As mentioned earlier, five years later I was already outgrowing it.

If you plan to have customers visiting your studio on a regular basis, make sure this is covered in your liability insurance. If you plan to have students or employees on the premises, see the next section.

For any professional studio artist/artisan, efficient studio operation is fundamental to making a good living. For traditional studio artists, the following discussion may seem a little mercenary, in reference to accountability and production efficiency. But in this case, the term "production" is used in reference to the efficient creation of your work. If your intention is to make a living from your work, then you are engaged in studio production, and production efficiency is everything.

Careful planning and scheduling are at the core of successful professional studio operation. For any studio artist/artisan aiming to make a living off their work, a high degree of organization is essential. Establish a regular work schedule, and adhere to it religiously. Make up simple paper forms to plan production cycles in order to accommodate the necessary amount of work. Always keep an accurate inventory of stock on-hand, plan carefully for upcoming shows and sales, and process orders methodically. From these efforts, produce production quota sheets which will give you a clear idea of what needs to be done each day. Keep in mind that these efforts will pay off for any serious artist/artisan.

As you settle into a studio career, from the start keep very careful records of every aspect of studio operation. Track the materials, creation, firing, and sale of all the different items you make, in order to determine the net payoff in each item. Track the use of raw-materials in order to efficiently order needed materials. Carefully monitor equipment maintenance and repair. Religiously keep kiln logs for each kiln and every firing, and carefully note any problems or unusual aspects of each firing. Get bookkeeping software and learn how to use it effectively. This will save you enormous amounts of time and money in the long run.

### ***The Professional Studio with Employees or Students Present***

A significant percentage of studio artists eventually either hire employees or teach students within their studio, and in this case the primary concerns must be smooth and efficient studio operation and a high degree of personal safety for all present. These should be inseparable. As soon as employees or students are present, the business owner is responsible for their safety and well-being on-site. As above, be sure you carry sufficient liability insurance specifically covering the kind of business you are operating. In such a studio all facilities must be set up strictly according to local building and safety codes, and all equipment and machinery must be installed and operated as specified in the manufacturer's instructions. Do not cut corners in this regard. If you cannot afford to set up a proper studio, then do not take on employees or students.

For any studio operation where teaching is a significant component of your business, make sure to keep very careful records of materials used by each student, and be sure and charge accordingly in order to guarantee a satisfactory profit.

A commercial studio with multiple employees requires a great deal of space to insure smooth operation in all areas of production. A business with four to six employees should have at least 2000 square feet of floor space, all inclusive. Exact spatial requirements will depend on the kind of production work being done. 2000 square feet might be adequate for a studio featuring traditional wheel-throwing and handbuilding methods, while an operation based jiggering, ram-pressing, and/or slip-casting processes will require far more space.

In all cases, production flow and traffic paths must be very carefully considered. Look for possible bottlenecks, and make sure that all steps in the production process, from the handling and storage of clay to the packing and shipping of glazed wares are adequately designed to accommodate the expected production with smooth efficiency. If your employees are tripping over each other because of inadequate space or because of inefficient space utilization, productivity and morale will decline.

Whenever employees or students are present, all kilns should be isolated in a separate kiln room, equipped with proper ventilation and smoke/heat and carbon-monoxide alarms. Fire extinguishers should be present at several locations throughout the studio. For a private teaching studio, smaller kilns allow more firings, increasing the learning curve. For commercial studios with employees, it may be wise to consider the installation of large production kilns such as multi-car shuttle kilns or multi-platform envelope kilns. Such kilns are the most efficient intermittent kilns, allowing sustained rapid-cycle firings.

In operating a production studio with employees present, all the issues of accountability and production efficiency mentioned above become even more important. Your long-term success will largely depend on the degree to which you document every aspect of studio operation and production. Inefficiency in this regard will cost a lot of money in the long run. If you are comfortable doing your own bookkeeping that is fine, but things become far more complicated

when you are paying employees. If it seems daunting, engage the services of a good bookkeeper. In the long run it will save money and headaches.

### ***The Professional Studio with an Attached Gallery***

Having a sales gallery at your studio or home has worked out well for many studio artists, especially those in high-traffic areas. A small showroom in your studio or house is a good option, but ultimately the most practical and lucrative arrangement might be to open a gallery, carrying not only your own work, but also the work of other artists/artisans. Anyone considering such venture should be aware of all the consequences. A serious gallery will require staffing so that you can concentrate on your studio work. If you enjoy the interchange with the public you may want to work a shift in the gallery, and you can certainly make arrangements with your gallery staff to tell you when a customer is especially interested in speaking to you and/or seeing your studio. This is one of the primary advantages of the attached gallery, as long as you do not mind the occasional interruptions. If you are gracious with interested customers, you will sell more wares, and word gets around. Dealing with the public in a pleasant and considerate fashion is among the best forms of publicity.

As mentioned above, as soon as you have a showroom or gallery on the premises, you must have the appropriate liability insurance, and all aspects of the facility must be up to code for such businesses. This may include handicap access, off-street parking, occupancy levels, number and size of access doors, fire alarm systems, etc. It can become complicated, dependent on local codes and the strictness with which they are enforced.

### ***The Academic Studio***

As in the previous example, any academic studio must be designed, built, and equipped in accordance with all local building and safety codes. As with larger commercial studios, ample space is an essential feature, but beyond that, such a studio involves a very different dynamic. Suitable shelves and/or lockers must provide generous secure storage space for individual student's tools and projects, and it's difficult to overdo it in this area. As mentioned elsewhere in this document, in my experience, studios with overcrowded shelves greatly outnumber ones with generous shelf space.

Wheels and work tables should be arranged for visibility and observation, so that the teacher and students can see what each other are doing and easily share information. Damp box/room and/or drying cabinet will greatly facilitate the smooth flow of projects, especially in climates where extreme dampness or dryness are a problem.

In a good academic studio at any level, students should have the option to have work in many firings in order to learn as much as possible with each firing. Smaller gas and electric kilns are most appropriate, and large production kilns are rarely practical. Depending on the size and priorities of the program, a big kiln for large sculpture and vessels may be justified.



A well-designed kiln room should be separated from all work spaces by appropriate fire walls and fire doors, and should be equipped with adequate ventilation for all kilns and for exhaust gases within the kiln room. As mentioned above, smoke/heat and carbon monoxide alarms should be hard-wired into the electrical system. Check with local fire marshals to make sure requirements are being met regarding number and placement of fire extinguishers.

Like a commercial production studio, the success of a teaching studio depends on smooth and efficient operation, with minimal crowding and friction among the various users. Adequate separation of throwing, handbuilding, and glazing areas offers tremendous advantages. In some cases, work cycles can be scheduled so that the same space is used for all purposes, but it is far more efficient in the long run to have separate spaces designated for each process.

In all teaching studios, access and space available to students should correspond to increasing skill level, or their development may be suffocated. This always presents a problem, but it must be addressed if students are to progress beyond the introductory level. Whenever possible, it is a great advantage to set aside separate working space for intermediate and advanced students. When this is not possible, these students should be provided with generous shelf and locker space and extra access hours.

### **Studio Equilibrium**

Life is a balancing act, in so many ways. The chances of professional success as a studio artisan are improved by good studio design, pleasant surroundings, proper equipment, and an organized work schedule, but all of that is useless without the ability to maintain psychological and emotional well-being. Great art often arises from suffering and deprivation, but consistent long-term studio creativity does not. Smooth studio operation depends on a reasonable level of stability and regularity in working habits and scheduling. At the same time, your accomplishment as an artist over time depends on exploration, risk-taking, and variety of experience. Long term success in the studio depends on careful balance of a wide range of things, and neglecting any of them may seriously disrupt creative inspiration and studio productivity.

As professional artists we profit from stability and predictability in day-to-day studio life. However, the kind of organization and scheduling that serve us well in terms of consistent productivity can easily evolve into excessive regimentation or repetition. Stasis and stability, without experiential variety, do not inspire artistic creativity. Ultimately this is a serious trap for many studio artists, leading to dissatisfaction and burnout. A good measure of ongoing studio well-being is an awareness and appreciation of the passage of time, marked by variety of experience. If your studio schedule and productivity become so regular and predictable that the weeks, months, even years begin to blend together, then you are in trouble or headed for it. No matter how good your work, it will eventually become the norm, ordinary and uninspiring. Even if your business is financially successful, and you are able to seek variety of experience outside the studio, without ongoing evolution in your work you will eventually saturate the marketplace with an unchanging product.

Artistic evolution requires a ready willingness to try new things and take risks in your work. The discovery of a successful style or product is no reason to stop experimenting with new ideas. In fact, exactly the opposite is true if we are to avoid studio burnout and/or market saturation. Maintaining aesthetic evolution in our work demands that we observe lots of other artwork, past and present. Allocate the funds to subscribe to magazines and buy books, and the time to read them. Spend time online exploring exhibitions at galleries and museums (see the “links” page on my website) and whenever possible, get out and go to galleries and museums. These will be among the best investments you can make. See the next section on access to information.

In order to sustain a career as an artist/artisan, you must be fulfilled by your work and your studio life. We can't expect to be upbeat and inspired all the time, but our involvement in the studio must produce a level of personal reward or satisfaction. It is our responsibility to maintain the necessary variety of experience to sustain that condition and to bring creative inspiration. This variety of experience usually involves a balance of things inside and outside the studio. At the most basic level it can be as simple as taking periodic breaks from the studio to work in the garden, go for a walk or bike ride, read a book.

It is possible to maintain a very well-organized, regimented professional studio life, and still seek the variety of experience to keep us interested and inspired. Many studio artists/artisans attend a few workshops every year to bring in a constant flow of new ideas and information. A workshop is an extraordinary opportunity, packing a great deal of learning into a short time period. As a long-term workshop instructor, I am proud to have inspired new work in hundreds of professional studio potters. In any successful workshop, information flows from the presenter to the participants, but just as important, it flows between participants who have often come from circumstances similar to your own.

When first embarking on a professional studio career, I sought advice on how to proceed. One of the most valuable guidelines was “Choose your market carefully.” Consider the implications of different studio strategies. If your primary intent is to make good money as an autonomous cottage industry, responding to market demands in steering your product development, you will likely sell your work wholesale through online sites and via gift shows and craft shows. If, on the other hand, your dream is to make a decent living creating individual, one-of-a-kind sculpture or vessels, online is still an important sales option, and you may wish to deal directly with shops and galleries. It is possible to strike a happy medium between these, but the essential thing is to plan your studio operation and your market to suit the lifestyle you want. Don't get stuck in a high-production low-return-per-item operation if you what you really want to do is sell one-of-a-kind work to galleries.

Life as an independent studio artist can be a solitary existence. Successful studio artists often seek and enjoy this solitude, but for most of us a certain amount of social interaction is absolutely necessary. If you feel this is lacking in your studio life, do not wait for it to come to you. Seek it out, and do so without hesitation. It may be that you should relocate to a studio cooperative, or to

an area with other workshops and studios close-by. Get involved in a regional artist's guild, and if there isn't one, reach out to other artisans and form a guild. This can have huge social and practical benefits. In most cases, you will find that other studio artists feel a similar sense of isolation, and they will welcome this involvement. Such a group can arrange exhibitions and sales, organize quantity purchases of supplies and equipment, and even host workshops and other educational opportunities.

In this day and age, it is just common sense to use the Internet in multiple ways to help your work and your life. Participate in online discussion forums. This will put you in e-mail communication with other studio artists facing similar challenges in and out of the studio.

As mentioned below, when possible attend the NCECA conference. You will meet friends from around the country and the world, and you will be energized by all the information and exhibitions. When considering the cost of attending, evaluate your own studio situation, and ask yourself whether you can afford *not* to attend.

### **Resources for Students, Studio Artists, and Educators**

Success in any endeavor depends largely upon access to information. History is full of examples of people who ceaselessly beat their heads against the wall in solitary martyrdom, obsessively struggling to reach some elusive goal. Determination and focus are wonderful things, as differentiated from bull-headed stubbornness. Failure to take advantage of every possible source of information is counter productive, and being *aware* of what information is available is half the battle. In any field, when you know a little about something, it is far easier to approach it seriously and/or to find out more.

For most studio artists/artisans, access to information is most easily accommodated with a good personal library and Internet access. I'm an old-fashioned craftsman and still believe that few things pay for themselves as abundantly as good books. Don't skimp in this regard. Subscribe to major ceramics magazines, and get in the habit of buying at least one book every month or two. Over time, you will build up a library which will save you an enormous amount of time and energy when you need information in a pinch.

Read your magazines from cover to cover, and allocate time to do online research into technique and design. Keep a journal or file of information which interests you. Collect and catalog clay/glaze recipes and decorating techniques. Keep a file of significant information sources. When you come across a magazine article or a passage in a book which is especially useful or interesting, make note on an index card, and keep a card file or database of these citations.

On-line resources change so quickly that it is pointless to list specific websites or services here, but a little searching will turn up just about anything you need. The "Documents and Information" page of my website contains an extensive collection of downloadable PDF handouts on all aspects of studio ceramics. Most commercial ceramic suppliers have webpages containing valuable

information, as do many magazines, galleries, and museums. There are extensive databases of glaze formulas on the internet, as well as material safety data sheets, and all sorts of other technical information. Many of those are accessible via the “Links” page on my website.

If you have read this far, you might find yourself thinking, “Why didn’t he mention such and such?” If so, please contact me. All of my handouts are evolving entities, and I update them periodically. I’d love to hear about your own studio experience, and am happy to answer your questions. Contact information is on my website.