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***Safety Rules and Procedures
for
KCAI Ceramics Department
Equipment, Materials, and
Facilities 2023-2024***

**Safety Rules and Procedures for
KCAI Ceramics Department Equipment, Materials, and Facilities**

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Failure to use equipment, materials, and facilities properly and respectfully will result in the loss of opportunity to use them.

1. Security

- Call Security at 816 931-6666 or text at 816 985-3843.
- Guards have first aid materials.
- In an emergency call 911 immediately.
- The address for the ceramics building is 4410 Warwick.
- Do not prop open doors to the outside. Keep them closed for safety purposes.
- Download the Rave Guardian app [at this link](#) so you'll be contacted with emergency information such as inclement weather and school closings.

2. First aid

- There is a fire blanket located on the wall in the kiln room.
- Eye wash stations are located in the glaze room, clay room, and the upper level west main studio next to the sink.
- There are two first aid kits; one upstairs outside of the classroom and one at the bottom of the stairs on the lower level, to the right as you go around the corner to Cary's office. If more first aid materials are needed, call security at 816 931-6666.

3. Fire extinguishers and Alarms

There are several fire extinguishers throughout the building; familiarize yourself with them. The following is a list of fire extinguishers locations throughout the building:

- Studio Main level (east side, Warwick) right of the sink
- Studio main level (west side, FD bldg..)
- Glaze room left of sink
- Kiln room right of barrel electric kiln #1
- Kiln room left of electric kiln barrel #5
- Mezzanine left at the top of stairs
- Plaster/Equipment room left of band saw
- Lower level studio right side as you enter the room

4. Fire alarms - Fire alarms are located in the following areas:

- Main entrance - to the right as you enter the main double doors
- Main level studio east side - right of the northeast exit door to Warwick
- Clay room - Left side of the exit door to dock
- Mezzanine - tops of steps, left
- Kiln room - left of the exit door to outside
- Top of Stairwell from main level to lower level - to the right as you enter the hall to stairwell
- Bottom of Stairwell - to the right as you go up
- Lower level exit- left of door as you exit to outside (toward Foundation)

4. Clothing

- Open toed shoes are dangerous.
- No bare feet.
- **Tie back loose clothing and hair when you use machinery.**

5. Personal safety equipment

All students must own and use:

1. Respirator half-masks and cartridges/filters for dust particles and organic vapors. The proper dust particle filter for the ceramics department will be labeled with the identification **P-100** and you will also need **organic vapor** filters. The organic vapors filters protect you when using lusters, china paint mediums, and other solvent-based materials. It's cheapest to buy a filter that contains protection for both particulate and vapors.

[Link to purchase North by Honeywell 7700 Series Niosh-Approved Half Mask from Amazon](#) (does not include filters, you must buy them separately. You may buy a small, medium or large half mask.

[Link to purchase Honeywell Home 7581P100L Combo Organic Vapor and P100 Particulate Filter Cartridge from Amazon](#). These filters will simultaneously protect against vapors **and** ceramic dust particulates.

There are other brands that make these items, be sure to buy the P100 and organic vapor/acid gas filters. They come as a combination cartridge (in the above link) or as separate units that can switched out on your respirator.

When wearing, adjust the straps so that air is not entering around the seal of the respirator to your face.

2. Extra respirator filters/cartridges.

When you can no longer suck air, or when you can smell or taste dust or fumes, it is time to replace the filter/cartridge.

3. A ziplock plastic bag for storing your mask and filters.

The filters will quickly become inefficient if left unprotected from dust. It is also important to wash or wipe your mask after each use. Do not get the cartridges wet.

4. Safety eye goggles for use when using the grinding wheel and other activities-that can cause flying bits of matter.

5. [Heat resistant kiln gloves](#).

6. Rubber and/or latex gloves for use when mixing and using glazes, overglazes, epoxy, and other materials that are toxic through the skin.

7. Work gloves to protect hands when using machinery and doing heavy work.

Note: Check with your instructor for more information about the appropriate cartridge before using materials that produce toxic fumes, as with lusters, china paint mediums, and non-ceramic materials that are solvent based or toxic in any way.

6. Housekeeping, materials, dust, fumes, and ventilation

- The **main on/off ventilation switch** is located in the lobby, clay room, and glaze rooms. It controls ventilation for ALL areas EXCEPT the plaster lab.
- The **plaster lab ventilation switch** is located in the equipment room across from the band saw. Press the BLOWER START button to start the vent system. (On the panel, the power switch should be lit green at all times. If it is not, you cannot start the system. ASK a faculty member to help you.) You will need to use this for dust as well as vapors, for example when applying lusters, when working in the plaster lab. Pull the vent hoods very close to your work area to keep dust and vapors flowing directly into the hood. Be sure the baffle on the hood is open – the baffle lever should be turned to be parallel with the trunk of the hood.
- If using vents for the lobby, clay room, and glaze room—Make sure the system is turned on when you are using equipment or performing a procedure that creates dust.
- If you notice the ventilation system is on and no one is using it, please turn off the system.
- When handling materials AVOID making unnecessary airborne dust and fumes! This is one of the best ways to keep the air in the department clean.
- Avoid brushing off your table and sweeping the floor. (if you must sweep, use plenty of sweeping compound.)
- Instead, wipe down your work area throughout your work session with a wet sponge or cloth, and wet mop the floor after each work session. Keep a bucket of clean water, a sponge, and a microfiber towel in your area while you work.
- Rinse your aprons, towels, etc. These can retain lots of dust when dry and will introduce dust into the air.
- Each student is responsible for keeping their individual studio space clean and for cleaning up after using community areas such as the clay room, the plaster room, the glaze room, the kiln room, etc.
- Ceramics students sometimes use materials other than ceramic ones that create toxic vapors and/or can be ingested through the skin, such as epoxies, adhesives, rubbers, alginates, spray paints, and the like. Read the label to thoroughly understand the hazards/toxicity of a product and use recommended precautions. Use your personal safety equipment such as masks, gloves, and the like. Use these materials in ventilated areas. **You must ask a ceramics faculty instructor before using materials that create noxious fumes, i.e. tool dip, epoxies, adhesives, paint, etc.** If given permission to use these materials, you must use them with the vent system. You may be required to find a better place to use the material than the ceramics department. Do not submit fellow students to hazardous/toxic vapors and materials.
- **The use of resins are prohibited in the ceramics studio.**
- No hot wax allowed in the studio.

7. SDS (Safety Data Sheets for materials) Binders

Refer to the Safety Data Sheets (SDS) binders available in the lobby and in the lower level studio, which have extensive safety and toxicity information on materials used in the department.

8. Mixing and using clay materials

(Clay Mixer)

- Clay particles are very fine and can cause silicosis and other diseases.
- You must protect your lungs from inhalation when mixing clay, cleaning, and other activities where dust is produced, by using the respirators as described above.
- Each student is responsible for helping to protect the environment from airborne dust by refraining from generating excess dust.
- The department's required Materials and Process course introduces students to the toxicity of individual ceramic materials used in the department.
- Wear an OSHA approved respirator for silica dust (p-100 filters).
- Turn on the ventilation system in the clay room or the main lobby.
- Close doors to the mixing room to keep any excess dust from moving into the main studio areas..
- Measure and weigh materials under the vent hood located in front of the outside doors.
- When handling material, avoid making unnecessary airborne dust.
- Clay mixer lid **MUST** be in the closed position (down) when mixing clay.
- Thoroughly clean the mixer after unloading your clay. Use a scraper and a sponge.
- Mop the floor of the mixing room. Sweep only if there are big chunks of clay and in that case use plenty of sweeping compound.
- No food or drink allowed in the clay mixing room.
- **Soldner mixer: Add water first, then dry materials.**
- When using Pug Mill:
 - Pug mill is for use only with clay from the mixer – not to reconstitute scraps.
 - When placing clay into the hopper, do not reach fingers into the grates.
 - To turn on the machine, first push up to “on” the power disconnect switch at the top right of the machine.
 - Then turn on the auger switch – located at the lower right side of the machine.
 - If you wish to de-air your clay, push the start button on the de-air switch.
 - After pugging – Turn off all switches and clean the machine and the area.
 - Keep clay inside the pug mill from drying out by putting a wet sponge in the hopper, covered by plastic, and a wet sponge and plastic on the end. Pay special attention to this!

9. Mixing plaster

- Plaster particles are very fine and can cause respiratory illness.
- You must protect your lungs from inhalation when mixing plaster and other activities where dust is produced by wearing your respirator and P100 filters.
- Refer to the Safety Data Sheets (SDS) binders available in the lobby and the lower level studio, which have extensive information on materials used in the department.
- Turn on the plaster lab ventilation system in the tool room by pressing the Blower On switch.
- Mix plaster under a vent hood. Open the baffle on the duct so that the baffle lever is parallel with the trunk.
- When handling plaster avoid making unnecessary airborne dust.
- When you are finished working close the baffle on the vent hood.
- When you are finished, wipe the tabletops with a wet sponge and mop the floor.
- Throw away empty plaster bags and other trash.
- No food or drink allowed in the plaster room.

10. Band saw - for use with wood and plaster, not metal

- Wear an OSHA approved respirator for silica dust (p-100 filters).
- Dust particles are very fine and can cause respiratory illness.
- Turn on the ventilation system in the lobby or glaze room.
- Wear eye and ear protection.
- **Make sure** the blade guard is adjusted to the appropriate height according to the size of the material you are using.
- Keep hands and hair away from the saw. **Tie back hair, remove jewelry, and restrain loose clothing.**
- Hold material firmly and feed into the blade at a moderate speed. If there is a problem, turn off the saw.
- Keep your hands and fingers free of the blade.
- Do not force the tool. Make “release” cuts before cutting long curves.
- Never leave the saw unattended when it is switched “ON.”
- **When cutting plaster on the band saw, make sure the plaster is completely dry.** Cutting wet plaster piece will cause the blade and saw to rust.
- Do not cut metal on the ceramics dept band saw.
- Be mindful of alternative sawing options, like hand sawing or using a surform.

11. Mixing and using glaze materials

- You must protect your skin from contact with glaze materials as the toxicity can be ingested through skin.
- Wear vinyl, nitrile, or latex gloves when measuring materials, mixing and applying glazes.
- Glaze particles are very fine and can cause silicosis and other diseases.
- Wear an OSHA approved respirator for dust (p-100 filters).
- Turn on the ventilation system.
- Place one of the ventilation ducts over your work area. Open the baffle on the duct so that the lever is parallel with the trunk.
- If there is not enough suction, close some of the other dampers that are nearest your work area, this will increase the suction to your vent.
- When handling materials avoid making unnecessary airborne dust.
- When you are finished close the baffle on the vent hood you were using.
- During and after mixing and using glazes, thoroughly wipe counters with a wet sponge and mop the floors.
- No food or drink allowed.
- The use of hot wax is not allowed.
- The use of any lead product in a glaze is not allowed (except china paint, see below). This includes commercial glazes that are marked safe that include lead as an ingredient. When buying commercial glazes, including online and at garage sales, check ingredients carefully.
- Make sure lids are tight on all containers.
- If you mix your own glaze tests and batches, only with the permission of your instructor, they must be labeled properly with your Name, Date, Title of glaze, the full Recipe, and the Temperature.
- You may not use old food containers for storing glaze.

12. Applying and firing lusters, china paints, and decals

- Many china paint colors **contain lead**. It's often hard to keep track of the lead content in the many colors that are available, so the departmental policy is to treat all paints as if they contain lead.
- Wear gloves so you do not get china paints on your skin.
- Wear P-100/organic vapor filters on your respirator so that you do not inhale powder or potential fumes from the china paint medium you select. Use vent trunk that is located in close proximity to your work so that fumes are collected and vented.
- The fumes released during firing are toxic so proper kiln venting is critical. Upon firing, the paints may or may not be food safe unless testing is performed, so **do not use china paints on areas of utilitarian ware that may come into direct contact with food**.
- Apply the same care to using and firing the mixing mediums as you do to the china paints.
- Lusters are mixed with solvents that are **highly toxic** to inhale while applying and firing. When applying lusters, use gloves, an organic vapor filter on your respirator, and a vent trunk that is located in close proximity to your work so that fumes are collected and vented. **Do not apply lusters to areas of utilitarian ware that may come into direct contact with food.**
- Some silk screened and digital decals contain lead. Treat all screened and digital decals as if they do contain lead unless you have communicated with the supplier. Treat all vintage or second party decals as if they contain lead. Use gloves when applying the decals. **Do not apply digital or screened decals to ware in areas that may come into direct contact with food. (Laser toner decals made on the photocopy machine in the department MAY be applied to surfaces that come into contact with food. These are the only decals that fall into this category.)**
- When firing lusters, china paints, and digital decals, **always be sure that the kiln lid and peeps are closed from the beginning of the firing and turn on the vent system**, to ensure that fumes are properly vented.
- The ceramics department prioritizes the firing of all decals, china paints, and lusters in kiln 6 & 7. The door to the room where these kilns are located must be closed when these kilns are firing.

SUMMARY - When applying, firing, and using ware with china paints, lusters, digital decals:

1. Do not eat or drink.
2. Wear protective clothing.
3. Wear latex gloves and respirator with both P100 and organic vapor filters.
4. Work under the vent hoods under/behind the stairs in the plaster lab **only**, so that dust and fumes are collected and drawn away from contact with you and other students.
5. Work on newspaper so that table surfaces do not absorb toxic substances. After your work session, dispose of the newspaper safely into trash receptacles.
6. Fire and use kiln vents correctly. Be sure that the kiln lid and peeps are closed from the beginning of the firing and turn on the vent system, to ensure that fumes are properly vented. Kilns #6 and #7 are for the use of these materials. If you must use another kiln, seek permission from the faculty.
7. Be aware of concerns regarding use of decals, luster, and digital/screened decals on utilitarian ware that may come into contact with food. Do not apply them in these areas.
8. After your work session:
 - Clean up your area very well.
 - Throw away newspaper and gloves.
 - Remove and clean protective clothing.
 - Wash your hands thoroughly.

13. Spray booth

- The spray booth is intended for slips, glaze and underglazes. Do not apply paint or any non ceramic materials in the spray booth.
- Turn on spray booth ventilation.
- Wear an OSHA approved respirator for particulate (p-100 filters).
- Wear eye safety goggles and hearing protection.
- Wear vinyl, nitrile or latex gloves.
- No eating or drinking.
- Clean booth, spray gun and floor when finished. Use a sponge.

14. Sand blaster

- Turn on main ventilation switch, located in the glaze room.
- Close both doors to the tool room to contain the noise.
- Wear an OSHA approved respirator for silica dust (P100 filters).
- Wear safety eye goggles.
- When changing blasting media, wear a respirator with P100 filters.

15. Kiln Shelf Care: Downdraft table and Angle Grinder

For safety, there should always be another person around the area when you are operating a grinder, and be sure they are also wearing safety equipment and not in a dangerous location.

- Grind shelves on the downdraft table only.
- Ensure work area is clean, free from slip, trip, and fall hazards.
- Ensure the floor around the work area is clean. Do not clean shelves and operate grinder while standing on wet floors.
- Clear off the downdraft table so that you have plenty of room to work freely.
- No drinking or eating in the grinding area.
- Wear safety glasses or goggles, a respirator with P100 particulate filter, and hearing protection to guard against hearing loss.
- Wear snug fitting gloves.
- Turn on the ventilation system, located in the glaze room, and close both doors to the tool room to contain the noise.
- First knock off large glaze chunks from shelves with a rubbing brick, or use a hand chisel at a shallow angle.
- Then remove smaller chunks using the hand-held angle grinder.
- To prepare for using the hand-held angle grinder:
 - Do not wear jewelry or other items that could become entangled in moving parts.
 - Avoid wearing loose clothing or secure loose clothing very well.
 - Tuck, tie back, or secure long hair.
 - Wear snug fitting work gloves to avoid snagging on abrasive wheel or wire brush.
 - Keep the power cord away from the grinding wheel and the material being ground.
 - Have other people not involved in the immediate work step away a safe distance from the grinding area.

To operate grinder:

- Be sure that the safety guard is in place.
- Ensure the grinder operates smoothly and does not vibrate. Do not use wheels that are cracked or those that excessively vibrate. If you notice any unusual cracks, vibrations or noises, STOP and speak to a staff member.
- You must ask staff to assist when changing grinding disks.
- Use both hands to maintain hold of the grinder. The handle may be fitted to either side depending on your dominant hand.
- When grinding avoid placing excessive pressure on abrasive wheels.
- Materials may become hot when grinding – wear snug fitting gloves and be alert.
- Switch off grinder when done. Wait until the wheel has stopped turning before placing the grinder on the working surface.
- Unplug the power cord from the power supply.
- Store grinder in yellow box for kiln shelf kit.
- Turn the downdraft table off.
- Clean area, including floor, and dispose of grinder particles.
- **Washing shelves:** Wash only the tops of the shelves. Wipe or wash off the sides and backs of shelves. Loose kiln wash can fall onto ware in the kiln, marring a glaze surface.

15A. Finishing Wheel

- Tie back long hair.
- No loose clothing.
- Respirator and P100 filter required
- Keep hands clear from wheel surface
- Wear eye protection
- Clean up after yourself, including equipment and floor.

16. Brick Saw Operation

- **USE ONLY UNDER SUPERVISION OF FACULTY OR TECHNICIAN.**
- **Tie back long hair and loose clothing, remove jewelry that could get caught in the grinder.**
- **Very dangerous.**
- Close both doors to the tool room to contain the noise.
- Wear eye protection.
- Wear ear protection.
- Keep hands clear from blade.
- Guide fence must be used at all times.
- Never operate the saw without water being pumped to the blade.
- Be cautious of wet floor around saw.
- After your work session: dry the floor around your work area and be sure the brick saw is properly stored and locked.

17. Plaster Wheel Operation

- You must be trained on this equipment with an instructor before using it and be in close communication with faculty when you plan to use it.
- Tie back long hair.
- No loose clothing.
- Respirator and P100 filter required if lathing dry plaster.
- Clean up after yourself, including equipment and floor.

18. Electric Kilns

- Be sure your name is on the kiln schedule if you are firing a kiln.
- If you cannot use a kiln, erase your name from the kiln schedule, inform your instructor, and announce to others that the kiln is open for use.
- Be aware of your surroundings to make sure nearby kilns are not hot.
- Never place or store anything on the lid of an electric kiln.
- Do not open the lid or place anything inside the kiln while it is operating.
- All electric kilns are equipped with fans/vents that remove harmful fumes and vapors during all parts of the firing process, including cooling. **Be sure they are activated during the firing and are on until the kiln is cool (150 degrees F).**
- Keep lids, doors, and spy holes closed through the entire firing until the kiln is almost cool.
- Use shaded kiln glasses for protection against ultraviolet rays when observing cones in hot kilns.

Computer controlled electric kiln venting operation:

- The controllers on computer controlled electric kilns have been programmed to recognize that a venting fan is in place. If the fan does not turn on, see a faculty member.
- **DO NOT PROP KILN LIDS OR DOORS.** Be sure the spy holes are closed.
- These kilns are designed to be fired with the lids and spy holes closed at all times to insure proper ventilation and firing.
- Any moisture that may be driven off during firing will be removed by the vent system.
- If long candling periods are needed the "preheat" function may be utilized if Cone Fire mode is being used.
- If Ramp Hold mode or Vary Fire mode is being used, the first segments programmed can act as a preheat.
- Lids and doors being propped open can cause the computer system to activate an error code and stop the firing. Noxious fumes will also be released into the kiln room.

If Cone Fire mode is used:

- The vent fan will turn on shortly after the Start button is pressed after a program is chosen.
- The fan will remain on until the kiln has cooled to 150 degrees Fahrenheit.

If Ramp Hold mode (Skutt barrel kilns) or Vary Fire mode (Tucker Cone Art oval kilns) are used:

- At the end of each segment entered the display board will say the fan is either **on** or **off**.
- If the display reads **off**, press any number on the keypad to turn the fan **on**, and then press enter, then proceed with programming the kiln.
- If the display reads **on**, press enter and proceed with programming the kiln.
- After all segments have been programmed with the fan **on**, press the Start button and the vent fan will turn on.
- The fan will remain on until the kiln has cooled to 150 degrees Fahrenheit.

Test Kiln/Luster and China Paint kilns venting:

The test kilns along with the luster and china paint kilns are located in a room that has its own window louver controls and overhead vent hood.

BEFORE FIRING, make sure the following vents are activated:

- The window louvers control switch is to the right of the door before you enter the room. Turn this switch so that the louvers are open (turn switch to UP position).
- Turn on the overhead metal vent for the room (sheet metal vent above barrel kilns) with the switch located to the right of kiln #6. It has an arrow pointing to it.

Loading and firing electric kilns

- Record your firing schedule using a kiln log for future reference.
- Always visually inspect the kiln before you load. Make sure the floor and element tracks are clean and free of debris.
- Use visual cones for every firing (computers don't always give an accurate reading).
- Carefully load your work. Be certain you are not scraping the sides of the kiln with the shelves or ware.
- Kiln shelves should not touch the side walls of the kiln.
- Make sure that kiln furniture is consistent throughout your stack. Place stilts one above one another throughout the stack.
- Be sure to put excess bricks on the shelf and shelves in the rack. Put spies in the bins attached to the wall.
- Use only the lid props attached to the kiln.
- Be sure to close the peepholes for the entire firing and until the kiln is almost cool. **NEVER COUNT ON THE KILN COMPUTER ALONE TO TURN OFF THE KILN.**
- Do not put hard bricks, ware boards or ware, or other items on the lids of the kilns.
- If you receive a user error of any kind: First, note it on the kiln schedule during your time slot. Second, let your instructor or technician know. Finally press "enter" on the controller and note the temp the kiln fired to. This is extremely helpful in getting the kiln working again.

After firing electric kilns

- When items are cool enough, use the lid prop that is attached to kilns to prop open the lid. Do not use bricks.
- Make sure all kiln furniture is clean and free of debris before returning to the bins. ○ Vacuum kiln bottom and element tracks carefully.
- Note any firing problems and report them to the technician.

Electric Kiln Rules

- Burn out is not allowed in the electric kilns, except in the use of paper clay. If you are using paper clay, you must check with your instructor before firing it in an electric kiln. Do not fire any non-ceramic materials, for example paper, wood, foam, straw, clothes, shoes, etc.
- Temperature limits:
Check with the kiln schedule to find out which electric kilns can be fired to a maximum of Cone 6. No kilns may be fired over their temperature limit. **Ware fired at temps over cone 6 must be fired in the gas kilns.**

Gas Kilns

19. Kiln wash and wadding

Kiln wash recipe (for gas and electric kilns)

Alumina Hydrate	50
Silica	35
EPK or 6 Tile	15

Wadding for soda/salt and gas oxy/reduction

1 Alumina Hydrate
1 EPK or Tile 6

Wadding Recipe for in between glazed surfaces

This wadding will be hard and stuck to the glazes upon unloading, but if you soak it in water, or give it a couple of days to soak up some moisture, it will crumble away and your glazed pieces will come apart easily.

95 Whiting
5 Bentonite

Instructions for using wash and wadding:

- Check kiln wash on each shelf and if necessary, apply more wash before loading.
- Remove all wash from the bottom and sides of shelves, or it may fall off during firing onto the ware below.
- Level the bottom (lowest) layer of shelves with wadding.
- You only need wadding for leveling out kiln shelves and in the instance when you are "4 posting" (using 4 stilts to prop a shelf). It might not be necessary when "3 posting".
- On subsequent kiln shelf layers, use the minimum amount of wadding necessary (usually the size of a grape is sufficient). If your wads are the size of golf balls, they may blow up and send debris all over your work.

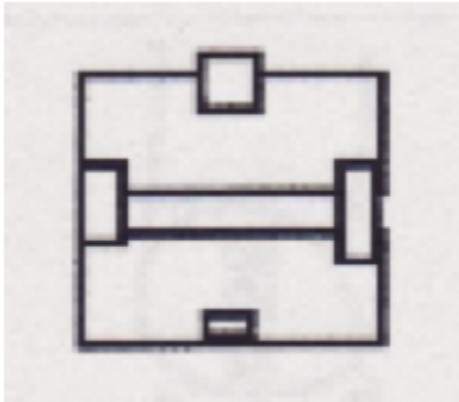
20. Kiln shelf storage

Your kiln shelves are fragile and expensive. Keep them clean and stored properly. Always store the kiln shelves vertically. If they are stacked flat they will crack.

21. Three posting

Place posts on each corner of the long side of the shelf and one in the middle of the other long side.

Note: Shelves will warp down in the middle of the 2-posted side and down on the corners of the single posted side. To counteract this, turn shelves 180 degrees when warping becomes apparent.

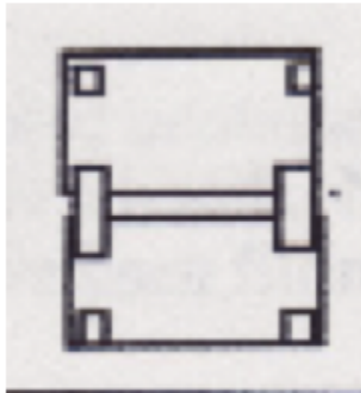


22. Four posting

Place one post in each of the four corners of each shelf.

When shelves become warped:

- Remove all wash using the wire brush attachment on the grinder.
- Turn the shelves over and rewash the new topside.



23. Stacking furniture

- Always place one post over another post.

24. Safety procedures for gas kilns

Ventilation System Operation:

- The kiln room ventilation system should remain on throughout the duration of a firing in which organic fibers are being burned out of a piece.
- The vent system on/off switch is located on the wall of the kiln room near kiln number 5. Press the button that says HAND and make sure the fan speed dials are turned up to 10. The window dampers will open automatically if they are not already open.

Please note about burnout firings: You may only use organic materials such as paper and cotton for burn out methods. Any use of burn out materials must be cleared with an instructor before using.

Refer to the instructions for each kiln for specifics regarding lighting and firing individual kilns.

Gas is explosive when it is concentrated into a sealed container with enough air for combustion. A kiln full of unburned gas is a bomb. NEVER try to light a kiln if you smell gas or suspect that a burner may have been filling the kiln with gas.

If you suspect this:

- Turn off the main and open the kiln door to allow gasses to dissipate.
- Turn off all valves including the main. Call and speak to an instructor before relighting. ○ Valves are off when perpendicular to the pipe. Valves are on when parallel to the pipe.
 - Only use a plumber's torch for lighting the Bailey kiln.
 - Never put your face directly behind a burner and never run a forced air burner without the blower on.
 - **There is a button for emergency gas shut off right outside the collection/classroom door. In case of emergency, use this button to shut down gas in all kilns in the new kiln room.**
 - Always wear shaded kiln goggles to protect your eyes against harmful ultraviolet rays when looking through peep holes at bright kiln atmospheres. These are located on the back of the door to the entrance of the kiln room.
 - When removing peeps, wear kiln gloves to protect your hands,
 - At the end of the firing (with the Bailey), close the damper, all peeps, and burner ports.
 - The vents behind the oval kilns and the windows above the gas kilns can be opened as needed to insure air flow and fresh air in the kiln room.

25. Kiln Logs

For each firing, keep a thorough kiln log that documents every setting, adjustment, and observation.

26. Bailey (gas downdraft)

You must have had instruction from Paul Donnelly on the gas kilns and permission to fire them on your own.

Ventilation:

- Turn Main ventilation toggle switch to the on position.

Kiln Log:

- The kiln log binder for the Bailey is located on the table next to the kiln. you can refer to prior firings to assist with future firings.
- All kiln logs must be filled out with the names of all participants and their phone numbers. ○ All gas kilns are fired with the buddy system meaning a team of at least two students who are in charge of the firing.
- The cones that are in the kiln must be reflected on the kiln log for emergency reasons.
- The kiln needs to be checked every 45 to 60 min and all of the setting must be recoded through every stage of the firing: Time, Damper, Gas, Air, Oxy, Cone, Atmosphere.

Loading:

- Make sure the support bricks for the first layer of shelves coincide with the Bailey diagram In the Bailey log binder. The target bricks should be 16.5 inches from the back wall. Shelves should be placed 2 inches from the back wall, 4 inches from the front wall and have ¼ inch gap between shelves. (The kiln will not fire correctly if it is not set up correctly).
- When stacking the kiln the first course should be 9" tall. The stack should be evenly loaded.
- Make sure each course of shelves are level.
- Make sure the baffle bricks are in place on both sides of the back 2 shelves of the first layer.
- Check that peepholes and cones correspond. The cones should be clearly visible.
- Make sure the track for the car is clean of debris and will roll smoothly, roll the cart into the kiln very slowly, watch your stack to make sure it will clear the sides and top of the kiln.

Lighting the pilots:

- Make sure all gas valves on the kiln are turned off. If they are not then the main burners will ignite when the second Baso valve is lit. This could result in injury.
- Press the start solenoid (outside of the teaching collection). This will allow gas to the kiln room.
- Leave kiln door slightly ajar.
- Make sure damper is open to specified location about 3.25"
- Turn on the main gas line, which is to the right and back of the kiln. Gas valves are "on" when they are parallel to the gas pipe.
- Turn on the secondary gas valve.
- Turn on the "light switch" to the main control panel (located below the main control panel). This will turn on the ventilation to the hood above the Bailey and allow power to the mail control panel.
- Turn on the main power to the control panel (top switch) "push on off".
- Push in the "reset switch" on the main panel (second from top) this will allow the gas to the pilots. **YOU WILL NOT BE ABLE TO LIGHT THE PILOTS IF THE RESET SWITCH IS NOT ENGAGED.**
- Select manual mode by toggling the switch to the right on the main panel (third from the top).
- Press the baso valve and put a flame to the pilot burner (hold 20-30 seconds) until pilot stays lit. You must light the right pilot (west side) first then the left pilot (east side) second.
- There must be 2 people to light the kiln safely. To light the pilot, use a small propane torch.
- Make sure the blowers are reading about .7 to .8 WCI.
- Once lit, close and tighten the door. Make sure the speedball handles (fasteners) are pointing outboard and are not in the way of the door closing. Make sure that the door is well sealed to the front of the kiln. **DO NOT OVER TIGHTEN THE DOOR....TWIST THE KNOBS UNTIL THE DOOR IS SEATED TO THE FRONT OF THE KILN.**

Lighting the main burners:

- There are two gas valves on the kiln. The left gas valve (west side) reads "Manual/ first stage gas". This is the valve that you will use for all manual firings. The right gas valve (east side) reads "second stage gas". This valve you will use when firing the kiln in the programmable mode (it will not work in the manual firing mode).

- To light the kiln swiftly turn up the “first stage gas” valve (left side / west side) till there is 3 WCI reading on the gage then turn the valve down so it the gas is “just on” and reading less then .25 WCI on the gas gage. If you do not turn up the gas swiftly then the burner will not ignite properly and result in “back burning”. This means that the burner is not doing its job of mixing the gas and air correctly.
- If the burners were lit correctly you will see a nice blue flame at the end of the burner. If it was lit incorrectly then the flame will be yellow in appearance and will eventually blow out which will result in delaying your firing. This may also damage the burner over time.

Firing:

- “Turn ups” are made every hour by increasing the gas 1 WCI until you get to body reduction.
- The Max Gas pressure for a reduction firing is 5.5 WCI. YOU DO NOT NEED TO FIRE WITH THE GAS HIGHER THEN 5.5 WCI.
- Refer to the gas firing handout for further oxy probe readings, damper and air adjustments.
- Use shaded kiln glasses for protection against ultraviolet rays when observing cones in hot kilns.

Shut Down:

- Turn off the main gas.
- Shut down air valves.
- Shut down gas valves.
- Close damper.
- Turn off the power on the control panel (top switch) “push on off”.
- The shutdown procedure is also located in the Bailey kiln log binder.

DO NOT SHUT OFF THE MAIN POWER TO THE CONTROL PANEL (THE LIGHT SWITCH), AS IT WILL TURN OFF THE VENTILATION TO THE HOOD. LEAVE THE MAIN VENTILTON ON AS WELL!!!!

Unload:

- Unload the kiln, DO NOT REMOVE THE FIRST LAYER OF SUPPORT FURNITURE. ON THE FLOOR OF THE KILN CAR. NEVER REMOVE THE TARGET BRICKS
- Clean the kiln, kiln furniture, and shelves. Store them properly. ALL FURNITURE MUST BE SCRAPED AND PUT AWAY.
- Sweep the area in front of and around the kiln. IT SHOULD BE SPOTLESS!!

27. Blaauw Kilns

To fire these kilns on your own, you must have had instruction and permission from Paul Donnelly.

Ventilation:

- Turn Main ventilation toggle switch to the on position.

Kiln Log

- The Firing Curve Sketcher Log needs to be filled out with your instructor or Tom, printed and posted on the clipboard behind the proper kiln. Please include the kiln (small or large Blaauw), the type of firing, your name and phone number.

Title
School Small Blaauw 10 reduction

Program

Description
 Paul Donnelly: 215-910-2948

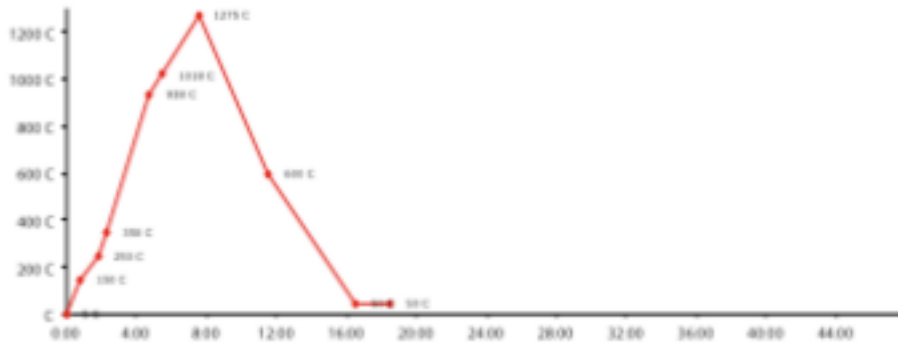
Kiln
SB

Created Modified
 8/1/17

LINE	TIME	TEMP	ACTION	RATE	ELAPSE	NOTES
00			start	--		
01	0:00	5 C				
02	0:45	150 C		193 C/h	0:45	
03	1:00	250 C		100 C/h	1:45	
04	0:30	350 C		200 C/h	2:15	
05	2:30	938 C		235 C/h	4:45	cone 08 body reduction
06			94%	--		
07	0:45	1018 C		107 C/h	5:30	
08			97%	--		
09	2:00	1275 C		129 C/h	7:30	
10			cooling	--		
11	4:00	600 C		-169 C/h	11:30	
12	5:00	50 C		-110 C/h	16:30	
13	2:00	50 C		0 C/h	18:30	
14			stop			
15						
16						
17						
18						
19						
20						

18:30 Total Elapse Time

designed by Jeff Chown, updated June 2011



**B
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W**



- Please note that, while logged in, Kiln #1 is the small Blaauw and Kiln #2 is the large Blaauw. Select the desired kiln to access the correct kiln information
- Selecting the graph option will allow you to see the progress of your firing.



- Note that the kilns CANNOT be controlled from this sight, only monitored. If you receive a general alarm or another issue arises contact your instructor immediately.

Loading:

- Loading and closing the door will be done under the supervision of faculty or staff.
- The SMALL Blaauw can only be loaded with two 12in. x 24in. shelves. The stack should be placed 3 inches from the leading edge and centered between the side walls. When stacking the kiln the first course should be 9" tall. The stack should be evenly loaded. Make sure there is nothing in front of the burner block which is located in the lower left rear corner of the small Blaauw
- The LARGE Blaauw can be loaded with up to four 12in.x24in. shelves.. The stack should be placed 1.5 inches from the back edge of the shuttle and centered between the sides of the shuttle. When stacking the kiln the first course should be 9" tall. The stack should be evenly loaded. Make sure each course of shelves are level. Make sure there is nothing in front of the burner blocks which are located in the front of the kiln in the ceiling of the large Blaauw
- The large Blaauw is a shuttle kiln. DO NOT STEP ON SHUTTLE while loading (damage to the shuttle will result). There is a step ladder in the kiln room that should be used.
- Always use the red handle to move the shuttle in and out of the large Blaauw. When pushing the shuttle in make sure there is nothing on the track and move it slowly, making sure it moves in easily. Always return the handle to the brackets located under the computer console.
- When closing the door make sure it stays parallel with the front of the kiln. When latching the door, secure one latch and then secure the opposite corner latch, then the others can be fastened.
- Once the door is closed on the large Blaauw, the shuttle track should now be lifted off the floor and secured to the door using the pin that is attached to the track bracket. **Lighting:**
- Programming and lighting will be done under the supervision of faculty or staff.
- The ignition of Blaauw kilns are done with the door closed.
- Once a program has been entered and a start mode selected (see Blaauw manual) the kiln will clear it's firing chamber with the blower and then the ignition sequence will commence. Make sure the kiln ignites through its ignition sequence before leaving. If it fails to ignite you will receive an error message

Firing:

- Monitoring will be done in conjunction with faculty or staff
- In the event of a power outage or the main gas valve being turned off inadvertently, contact faculty or staff to re-light the Blaauws.

Shut Down:

- Done under the supervision of faculty and staff.

Unload:

- DO NOT OPEN KILN WITHOUT CHECKING THE TEMPERATURE READOUT FIRST. THESE KILNS ARE INSULATED VERY WELL AND WILL NOT FEEL HOT ON THE OUTSIDE OF THE KILN.
- Opening and unloading is done under the supervision of faculty or staff.
- When opening the door unsecure one latch and then unsecure the diagonal corner latch, then the others can be unfastened.
- As the door is opened make sure it stays parallel with the front of the kiln.
- If there appears to be any damage to the kiln DO NOT UNLOAD until faculty or staff has been notified.
- Clean the kiln, kiln furniture, and shelves. Store them properly. ALL FURNITURE MUST BE SCRAPED AND PUT AWAY.
- Sweep the area in front of and around the kiln. IT SHOULD BE SPOTLESS!!

**Be safe,
and if you have questions,
ask the ceramics technician or a ceramics faculty member.**