

Arch 'n Craft

Week 9. Designing a Ceramic Vessel and a Firing Process

Part 1.

Next class – April 6 (Week 10) we will construct ceramic vessels. Everyone will have access to an assortment of clays, temper, and equipment. The kick wheel will be assembled by then, and Krysta can also provide other materials / equipment by request (as a result of today's exercise).

Your mission, on April 6, will be to **re-create the vessel form** that you studied over the past week.

As part of doing experimental archaeology involves mapping out all steps in an experiment's process, Part 1 of this exercise asks you and your group members to organize these roles and design decisions.

Instructions:

Next class, one member of the group will try to **replicate the vessel as accurately as possible** – staying true to its size, form, and manufacturing techniques. This will be your group's control vessel. The other group members should work to replicate **only the vessel's form**. They can then introduce variations in construction technique, clay type, fabric temper, etc. During the manufacturing process groups can work as a team, but each person will be responsible for "leading" the construction and design (and later, the analysis) of an individual vessel.

1. Decide as a group who will take the lead on 1) the accurate vessel replication, and 2) on other variations on the same form.

2. Next, list next to each person's name the design procedure that they plan to implement in achieving their vessel form. The options are entirely open, though there are limits on glazing. * if your group has an absent member today, the present group members should decide on an experimental type for the missing person to make *

In regards to the vessel that is to be accurately replicated, you will have already identified its construction techniques in your homework for today, so it's fine to simply list next to the person's name the actions that its replication will entail (e.g. coil-forming, 5% grog temper, burnishing, incised decoration).

More specific information should be provided for those who are not replicating the museum piece. Try to be as specific as possible in describing the design process. Consider whether you plan to make the form larger or smaller, what (if any) temper to include – and how much, how the vessel will be formed (coil, slab, paddle, wheel, combo), how the surface will be treated, etc.

3. In a short summary (1-2 paragraphs) you should also address some of the challenges that your vessel form may entail in the construction stage. Also, address WHY you are planning to use particular techniques and tempers. What do you hope will happen (or not) as a result? What limits might you be testing? Properties improving?

4. Present the list and the short summary (#3 above) as part of your write-up that is due for next week.

Some helpful hints:

Your group is essentially designing a form-based experiment. It is up to you to focus in on testing the questions that most interest or trouble you in relation to your vessel form. It might be useful to look at Part 2 and its parameters as well – this is the firing process that we'll be using.

The clays we have available to work with are:

- Hugo Grey Clay - a stoneware (the clay we used for bloomeries) – 25 lbs
- Malone Red Clay - an earthenware – 10 lbs
- Terra Cotta Clay with Grog - an earthenware – 15 lbs
- Celluclay – synthetic -10 lbs

Temper can include:

- Kitty litter, sand, gravel, organics, or anything else you can envision and access

At this stage it is somewhat hypothetical, but the information you provide in response to this will make it possible to implement these design steps next week.

Part 2. The Firing Process

The scenario:

On April 13 (Week 11 of class), we will fire the ceramics that we construct on April 6 (Week 10 of class). We will most likely be conducting the firing in the empty parking lot next to the archaeology lab. Alex and Krysta will be available to begin the firing at noon, and it can last for up to 7 hours. Each class member will have the opportunity to fire at least one vessel, for a total of 17 vessels (at least) that need to be fired.

Given the university's stringent and fun-busting health and safety policies, we are limited in our options for firing processes to a barrel kiln. A number of resources exist online and on the course wiki about barrel firing. It is likely that we can feasibly operate no more than two barrel kilns during this firing period and for this amount of ceramics. However, we are more flexible with fuel availability, depending on what type we select.

With this info as your design constraint, and informed by details in the readings, comparative examples, your group's research and your own creative ideas, design a kiln and a **firing process** that we could conceivably use on April 13.

After researching a few barrel kiln designs, the following questions are to be addressed by all:

1. What type of barrels should we use? Are there optimum heights / sizes for firing?
2. Should we insert ventilation holes into the barrels? If so, why, and where?

We will discuss these in class. You don't need to write these up now.

The following questions should be addressed by individual groups. **Answers should be included as part of the group's write up for next week (in addition to the Part 1 answers):**

Group 1.

- What type of variables should the class measure over the course of the experiment? How often should these measurements be taken? What types of documentation and recording equipment should the experiment involve?

Group 2.

- What types of fuel should be used in the barrel furnaces? How much fuel will be required?

Group 3.

- How might we achieve different atmospheres during the firing? Reduction and oxidation conditions?

Group 4.

- How should the kilns be loaded to maximize its efficiency during firing and to maintain control over each group's vessel-based experimentations? Think about the vessel sizes and forms that each group will be making.