

# Firing Tips



## LOADING A KILN FOR BEST RESULTS

Loading a kiln for firing is not a simple matter of placing shelves and stacking ware. The more thought and planning that is put into loading, the better the results. Ware and shelf placement, the size of the load, the firing characteristics of the kiln and the type of ware being fired are all important factors.

### First the Furniture

Kiln shelves come in all shapes and sizes. For economy of space, it is best to choose shelves similar in shape and size to your kiln chamber. For instance, use a round or multi-sided shelf in a round or multi-sided kiln. Keep the size small enough so there is at least 1" of space between the shelf edge and the side of the kiln or the Kiln-Sitter. Also allow some room between the top of your ware and the lid of the kiln and leave space for witness cones amongst your ware.

Select posts in heights to accommodate the ware you are firing. Leave some room between the kiln shelves for air to flow, for heat transfer and for removal of fumes.

Half shelves are very useful to improve air movement in the kiln. Use two side by side with a 1/2" space between them and you don't lose much stacking space.

Some kiln manufacturers recommend placing shelves directly on the floor of the kiln. Most suggest using 1" posts to put the bottom up from the cooler floor. This creates an insulating layer much like a storm door.

### Setters and Stilts

Air movement in the kiln is clearly a big consideration - one of the most important when loading a kiln. Ceramics need to heat uniformly to prevent warping and stresses in the ware. Air needs to move around shelves and around individual pieces.

Plates and tiles benefit from the use of tile and plate setters or stackers. Shelf style setters allow air to move under the large flat objects so they heat more evenly. Avoid heating large flat objects directly on the cooler shelf. If you are firing decorated tiles or plates, vertical setters economize on space, and sets can be stacked to fit even more.

Glazed ware needs to be stilted or dry footed or the melting glaze will stick the ware to the kiln shelf, ruining both. Stilts also provide space for air to move around all sides of the ware.

Porcelain and stoneware can not be stilted. The stilts embed into the ware

during firing. Instead, use high fire kiln wash or silica sand on the shelf. Use prop to prevent sagging of porcelain.

### Consider Heat Distribution

It is important to evaluate heat flow in your kiln and to make this a consideration in loading. Use pyrometric cones to determine the heating characteristics of your kiln so you know where the hot and cooler places are. Arrange your ware with different sized pieces on the same shelf to allow better heat flow.

### Don't Overfill

Perhaps one of the most important factors in good fired results is enough air to mature the ware - to burn out organics in bisque and develop best colors in glazes. Shelf and ware placement and the use of setters and stilts can all help this, but here are a couple more tips:

1. When stacking bisque, invert bowls and mugs opening to opening instead of nesting - this helps air move around all sides of a piece and prevents black rings and spots in the bottom of ware.
2. Fire bisque lids and bottoms together. To set the best fit for lids, fire them on the piece they match. This will let the two pieces shrink together so you get a good tight fit. Fire all glaze pieces separately.
3. Leave space between ware - don't overfill. There is a temptation to cram as much as possible into the kiln to economize on firing costs. Ware fired too closely together creates firing problems. If you

must overfill, fire very slowly and vent adequately.

4. Mix thin and thick-walled pieces together throughout the load - don't concentrate them in one area where they are competing for air and heat.
5. Use downdraft venting to move air through the kiln and to remove fumes created during firing.

### Want to learn more?

Read more about Loading A Kiln in the Orton Firing Line and Technical Tips publications. Members of the Orton Center For Firing receive these publications at no charge. Single copies are available to non-members at a per issue rate. Orton's 80 minute video, *Key Principles of Successful Firing*, is also an excellent resource on firing.

**For information on Orton products, see your Orton dealer or distributor.**

**For information on the Center For Firing or publications, contact Orton, PO Box 2760, Westerville OH 43086, 614-895-2663**