



## Grow Good Habits

Good habits create good projects. The more good habits you have, the more good projects you will create. The opposite applies for poor habits. Poor habits need to be weeded out. If you make good habits a routine part of your work, you will routinely have successful projects. If you allow poor habits to become part of your work, you will routinely have failed projects. Here are some good habits you might want to adopt.

### Triple Check firing Schedules



*Reviewing the program*

A small mistake in your program can result in a destroyed project. It's a very good habit to triple check all firing schedules you program into your kiln by habitually doing it in three steps:

1. *Write down the firing schedule you plan to use.*
2. *Program in the firing schedule you plan to use.*
3. *Turn the kiln on, then review the firing schedule to confirm it's correct.*

### Be Patient with Kiln Wash

More thin coats is always better than fewer thick coats. Allow each coat to thoroughly dry before applying the next coat. Residual moisture in kiln wash is a common cause of bubbles. Placing a kiln shelf or mold on your kiln lid while it's firing will speed up drying. Apply at least 4 coats – 6 is even better.



*Drying a kiln shelf on a hot kiln*

### Prepare Kiln Shelves

It's a good habit to have two kiln shelves for each kiln. This allows you to always have one kiln shelf prepared with kiln wash ready for immediate use. It's a good habit to do this as soon as you empty your kiln. Replace the shelf that was in the kiln with the pre-prepared shelf. While the shelf you removed is still warm, apply a single thin coat of kiln-wash and set it aside ready to swap it for the other shelf after the next firing.



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### Keep a Kiln Log

One of the best of all habits is to keep a detailed record of firings (if possible with photos) that you can use to refer to when you want to do a project you have tried before. If there are any suggestions for improvement (fire longer, hotter, etc.) be sure to note that in your records. This allows you to fine tune projects to create consistently improved results.

### Clean Kiln Lids



*Vacuuming out lid element groves*

In time, all kiln lids drop bits of brick dust. Make it a habit to routinely sweep the lid and vacuum out, or blow out, the element groves in both the lid and walls.

### Check Kiln Elements

Kiln elements expand when heated and, after repeated firings, stretch and push out from the element grove. Allowing them to stay out will allow them to stretch much more. Push any loose element back in and, wherever needed, hold it in place with extra element pins.



*Inserting a new element pin*

### Segregate COE

A single tiny piece of different COE glass can destroy a project you've invested a lot of time and materials into. I use both COE 90 and 96 routinely and sometimes COE 82 float glass. Different COE glass is kept in completely different parts of the shop and small scraps kept in clearly marked containers. If your studio space isn't big enough to permit doing that, take great care to label the COE on the glass either with a sticker or a marker pen. This is where fastidious is a fine habit.

### Plan to Prevent Correction

Few corrections work. Trying to fix something that failed is more likely to make it worse than better. Most often the only thing that comes from trying to fix a failed project is wasted time and increased frustration. One of the very best habits any artisan can have is the habit of planning to prevent mistakes rather than hoping to get lucky and have a "happy accident". Accidents are often more unhappy than happy. If you want to



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get lucky, buy lottery tickets. Don't gamble with your glass projects.

### Avoid Assumptions

**Slower isn't always safer.** It's popular with glass artisans to assume it's always safer to ramp slow. NOT TRUE! It's "usually" safer, but NOT always. There are times when ramping slow causes the problem you're trying to avoid and ramping fast prevents it. Assumptions cause accidents.

**Different kilns read temperature differently.** How glass responds to heat is predictable but how accurately each kiln reads temperature is not predictable. Because one kiln produced perfect results when fired to a specific time and temperature, doesn't mean the same results will come from a different kiln. If you fire glass to 1450°F in one kiln, you will get exactly the same results if you fire glass to 1450°F in any other kiln. If you get different results it's because one of the kilns isn't accurately reading the temperature. Don't assume your kiln reads temperature accurately until you have carefully tested it.

**Temperature isn't the same everywhere in your kiln.** The only place your kiln records temperature with any degree of accuracy is level with the thermocouple. It will be cooler below that level and warm above that level. You should allow for that when you position your kiln shelf.

**Compatibility isn't just COE.** Equally important is viscosity – how liquid the glass becomes at different temperatures. Don't assume all glass softens at the same temperature. Black glass softens at lower temperature than white glass. Transparent glass softens at lower temperature than opal glass. You need to learn how to allow for different viscosity just as much as you need to allow for different COE and make a habit of considering that in your firing schedules.

**Longer time is not the same as higher temperature.** Different cooking time produces a different result than higher temperature when cooking food. The same applies when you cook glass in a kiln. Do test firings of both increased temperature and increased time before deciding which results you prefer.

**Dare to Experiment.** Sometimes the best way to do something is the way you haven't tried yet. Experiment, but be prepared for failure. Failure is part of learning. Almost all experimentation is governed by the "Goldilocks Principle". As in the story of the three bears, the first try will be "too hot", the second try "too cold", and not until the third try will it be "just right". Perhaps the one most valid assumption is that, if you haven't tried it before, assume it will fail.

**Distrust Shortcuts.** Most of the time, the only real shortcut is getting it right the first time. This doesn't mean not experimenting. It means not assuming a shortcut will work until you have experimented with it. Trashing all your bad habits and replacing them with good ones is usually the best shortcut of all.

### Good habits create good work

If you weed out your bad habits and cultivate a garden of good habits you'll grow a crop of great projects.