

## CHECKING KILN CONTROLS

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With today's marketing changes we are faced with more rigid moisture content specifications, new sizes, new standards plus a hurry up program. Also quite frequently it is suggested we dry more, faster and still reduce the degrade with our existing equipment.

What does all this mean to our dry kiln? First and most important it means control and that is what I'd like to speak about today.

Dry kiln controls are probably the most antiquated, most abused, yet most taken for granted item we use today. Rarely is any work done on a kiln controller until it just plain quits. Yet the kiln instrument controls two of the most important drying considerations: namely, heat and humidity.

### What Makes Up A Controller:

Most kiln controllers consist of a vapor filled bulb in the kiln connected by fine tubing to the action piece in a case on the panel in the control room. The action piece by linkage indicates the temperature and bypasses air to control same.

How can we check this unit and make sure it's doing the very best job it can?

#### By Inspection:

Some of the first items to be looked at would include:

- I. Good visual check of instrument panel board
  - a. pens
  - b. set controls
  - c. chart drive (clock)
  - d. indicating gauges
  - e. air reducer valve
  - f. air filter
  - g. air lines
  - h. compressor
- II. Check calibration - for which we need the following:
  - a. bucket
  - b. hot water
  - c. mercury thermometer
  - d. simple tools

Then by removing each bulb or gas filled sensor from its bracket place the bulb in a bucket of hot water (about 150°F.). This should be done at the level at which the bulb is mounted. After the bulb has been immersed in the hot water (large part covered but not touching sides) for 5 min. read the water temperature with a good mercury thermometer and compare with the pen reading. Appropriate calibration for any large variations (3°) can be made using the adjustment screw on the instrument.

In the case of dual bulbs this should be done with each one. Also the wick can be removed and the wet bulb checked just the same as a dry bulb.

III. Some don'ts:

- a. Use a hygrometer or humidike to calibrate an instrument.
- b. Coil large amounts of excess tubing in kiln.
- c. Allow tubing to lay on a hot pipe
- d. Kink tubing
- e. Allow tubing to lay not secured in kiln.
- f. Allow compressor to pass oil or water into instrument (blow down air frequently).

IV. Some do's:

- a. Locate control bulbs 12" or more from wall in path of circulating air and not under a vent.
- b. Cover bulbs with paper bags or the like while painting.
- c. With dual bulbs mount both at same level.
- d. Check wet water lines and wicks frequently.
- e. Recheck calibration any time one pen lags or shows low erratic response (could be a blown system).
- f. Check the chart plate of the instrument and use matching chart.
- g. Keep your pens clean and inking clearly. This record reflects your work, a sloppy chart does not help.

V. Finally turn on air and check to see if valve action is matched with set point and indicating pen.

VI. Check air operated heating and spray valves to make sure they are opening and closing properly.

VII. Check roof vents and operators for proper action.

VIII. With direct fired kilns check your air operated burner control. An instrument should be checked at least twice a year but don't become addicted to "tinkeritis". It can be as bad as no care at all.

NOW LET'S DRY LUMBER UNDER CONTROL!