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The following is exerted from my book, *Clay: A Studio Handbook*

Gas-Line Pressure: Variations and Measurement

Gas is delivered at different levels of gas-line pressure depending on circumstances and type of gas, and this must be taken into consideration when designing a kiln and selecting burners. In discussing kiln combustion systems we refer to gas pressure as low-pressure or high-pressure. Low pressure gas is measured in *WCI* or water-column inches, while high-pressure is measured in *PSI* or pounds per square inch. The WCI reference comes from a very simple pressure-measuring device called a *U-tube manometer* featuring U-shaped glass tube partially filled with water, with the pressure source connected to one leg of the "U." When pressure is applied to one end of the tube, a measurement of one WCI is the amount of pressure required to raise the water level one inch in the other leg of the tube. While you can build your own U-tube manometer, most people elect to use *WCI pressure gauges* available from kiln equipment suppliers.

Normal household natural gas is regulated at the gas meter down to a pressure of 7 WCI, and household LPG or propane pressure is 9 WCI. 7 WCI translates to about 1/4 of 1 PSI. Domestic natural gas hookups dedicated to kilns with no other gas appliances connected can usually be adjusted by the gas company to deliver up to 10 or 12 WCI and on rare occasions even more. This will make a huge difference in the maximum output of the burners.

Industrial natural gas installations often carry far higher pressures of 10 PSI or more, generally regulated down to lower pressures at each gas appliance. In some LPG systems dedicated to kilns, adjustable regulators installed on each gas appliance are capable of delivering as much as 15 to 20 PSI.

As a general rule higher pressures almost always means more noise from the burner, so it is not necessarily a wise choice to go for small or less burners with higher gas pressures in order to get the desired BTUs. It is a fine thing to have a kiln with plenty of burners so that it fires quietly on lower pressure.

In any gas-burner installation, an appropriate WCI or PSI gauge can be installed in a pipe "Tee" plumbed between the burner valve and the burner itself to provide an accurate means of standardizing burner adjustment. This is especially useful on systems featuring multiple burners with individual valves, where it is important to balance the pressure between all burners.