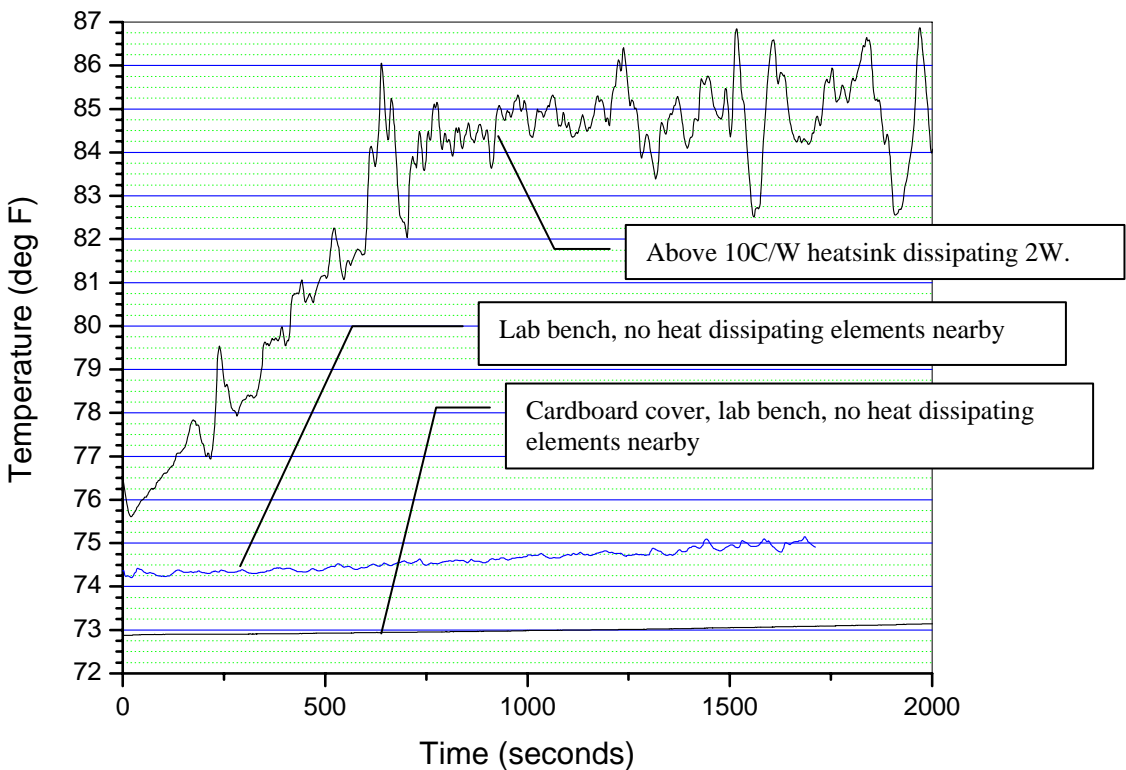


Everybody Knows: Still Air

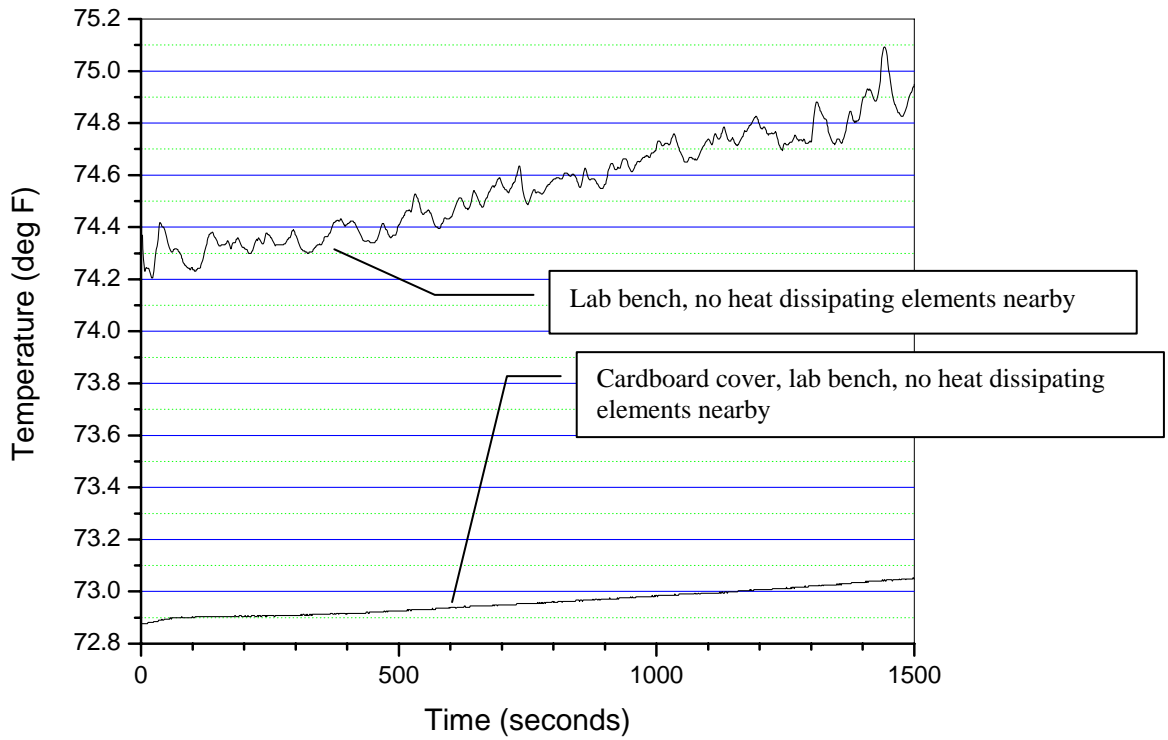
Everybody knows that restricting air currents over a precision circuit, or measurement, is often required for stability and reduction of performance/measurement variance.

The information that is lacking in the “common” knowledge, is what is considered to be still air, and what one should expect in terms of temperature stability. To be sure, it must be better than one lab I had an opportunity to do some work in - the ambient environment tended to swing 8 degrees F whenever the overzealous air conditioner system cycled on and off.

Neglecting HVAC cycling, still air on a lab bench typically can be ± 2 deg F near a heat-sinked component (convection cooling develops turbulent air), ± 0.1 deg F away from heat dissipative components, and ± 0.02 deg F underneath a simple cardboard enclosure, as summarized in the graph below:



Same graph as shown previously, zoomed in on the two more stable temperature plots



Same graph as shown previously, zoomed in on the cardboard enclosed temperature plot:

