**Experimental Procedure:**

The following is the procedure that our group completed by following the guidelines outlined in the document “Ratio of Volumes – Expansion Processes of a Perfect Gas (TH5-B).” We found that we did not have to deviate from the established procedure.

Before beginning the experiment, make sure all of the equipment is working properly.  This is done by opening all of the valves and checking that all tube connections are secure. Also turn on the pump to verify that the valves work properly, verifying that the pressure does not change after the pump is switched off. Next check that the computer and the pump are plugged in.  When everything is ready to be used, turn on the computer.  Open the experiment program and set Patm to be 760mm of Hg.

Close all the valves except V1 and V3 to allow air into the vessels.  This starts the experiment at atmospheric pressure.  Close V1 and V3 while opening V4.  Turn the air pump on to pressurize the large vessel.  Watch the electrical console to note the pressure.  Wait until the pressure passes 30 kN/m2.  When it reaches about 32 kN/m2, turn off the air pump.  Close V4 immediately and wait until the pressure in the vessel stabilizes to a number that does not fluctuate more than 1 kN/m2.  Record the pressure as the starting pressure, Ps. Similarly, record the volume as the starting volume, Vs.

On the computer, click the “Configure” button.  Type in “1” for the sample interval length in seconds.  Click “Start” to begin the data logging.  The computer will start collecting data on a table.

Make sure that valve V5 is completely closed and open valve V6. Slowly, open valve V5 by turning the knob to let air into the second vessel. This has to be done carefully. Make sure that the pressure is dropping slowly while the temperature remains constant. If the temperature changes then that means that this test run is invalid.

Wait for the pressure to stabilize at a pressure that does not fluctuate more than 1 kN/m2. Record this final pressure as Pf.   Click “Stop” on the computer program.  Save the data table and repeat the experiment for a total of five runs.