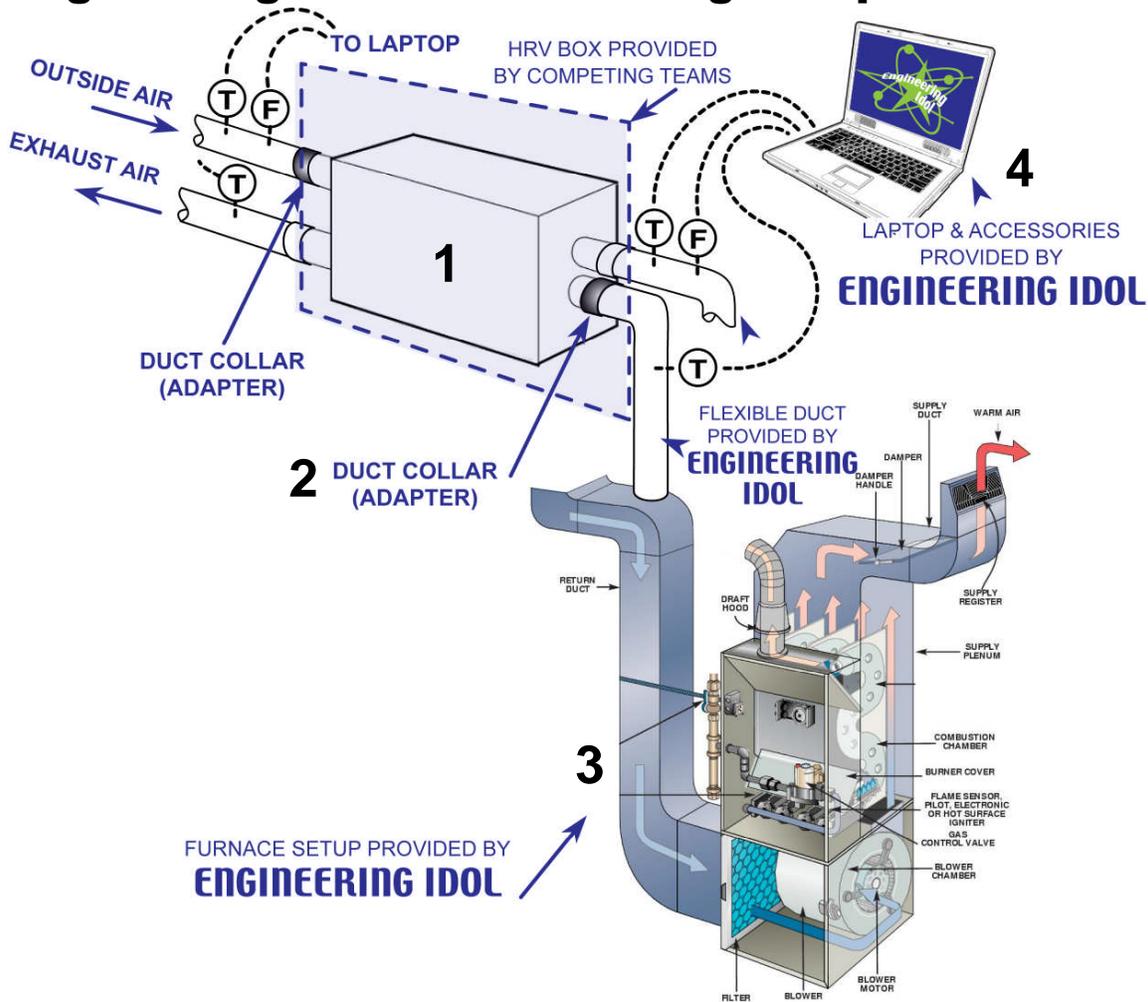


Engineering Idol 2009 – Testing Setup



1-The HRV “Box” to be built by the teams. What matters the most is what’s inside the box, which is a “heat exchanger” made of some kind of material that makes heat transfer from one hot air stream to a colder one possible. What is this material? What design creates the most efficient heat transfer? That’s your job to find out and build on competition day. Make sure you build it inside an enclosure (or the “box”).

2- Duct Adaptors: we will give you the “duct collars” or duct adaptors so you install them on the air stream openings on the HRV enclosure or “box”. Each adaptor is 4” in diameter which is big enough to allow 150 CFM (Cubic Foot per Minute) of air to pass through. The adaptors also will make it easy to connect your HRV to the round ducts connected to the furnace, which leads us to number 3.

3-Furnace: this is similar to the forced air furnace installed in your basement. For safety reasons, we’re not hooking up the natural gas supply to this one. This furnace has the fans that will push the cold and hot air streams through your HRV box. Our furnace will try to push 150 CFM (Cubic Foot per Minute) of air through each air opening. It’s your job to design the heat exchanger to allow this volume of air to pass through with the least resistance.

4-Sensors and Controls: we will provide temperature (T) and air flow (F) sensors so we can measure the rise in temperature of the incoming cold air and the amount of air flow. The temperature rise of the cold air and amount of air flow is a measure of the efficiency of heat transfer in your HRV box.