A restaurant has an exhaust fan that is designed to pull 2,300 CFM of air of the kitchen. It has a dedicated outdoor makeup air system that brings in 2,300 CFM. If you wanted to make the kitchen positively pressurized what would need to happen?

Kitchen odors are coming into the dining area when the waiters open the doors to the kitchen. The owner states this never used to happen. What could be the cause for this change in pressure?

Looking at the picture of the economizer, what would happen if everything was operating properly except the Return air damper became stuck ½ open?

An ERV is designed to bring in 250 CFM. It was measured with a fan powered flow hood and found to be only bringing in 150 CFM. What is the most likely cause for the low airflow?

Field Notes:

Generally, the engineering additional CFM designs to provide pressure differences will work. However, positive and negative air pressures between zones with designs based on extra CFM in those zones always needs to be checked in the field. The pressures are very small and can be influenced by wind outside of the building and the tightness of the buildings outside walls and the walls separating the Zones. The easiest and quickest check is with a chemical smoke stick that can verify the airflow direction at doors and between sections.

It is always the economical choice to have the exhaust and makeup air be at the lowest possible values. That way heating or cooling the 100% outside air being brought in will be minimalized and the operating expense will be lowered.