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

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

An energy recovery ventilator (ERV) designed to remove 400 CFM is listed as 60% efficient at transferring heat. How many CFM would need to be heated or cooled to room temperature?

For the ERV above, convert the CFM to fully cooled/heated and totally unheated/uncooled proportions for calculating the load easily.

Field Notes:

Studies have been done that state the over 80% of the economizers in existing rooftop package HVAC systems are not working correctly. Damper adjustment and operation to design specifications is the weakest link in most economizer installations. Thus, verification that all of the dampers are operating together is important. Often there is the appearance that there is no relief damper and thus, no relief. In many cases the relief is a damper that is opened by building pressure located somewhere in the building. In those cases, a technician needs to make sure the building will not over pressurize in the economizer mode by placing it in the economizer mode and locating the relief damper to make sure it is set to open at a reasonable pressure. Often they are never set and they may not be located in a place where they can relieve the pressure caused by bringing in 100% outside air. For example, the relief damper may be enclosed by a fire wall in one office.