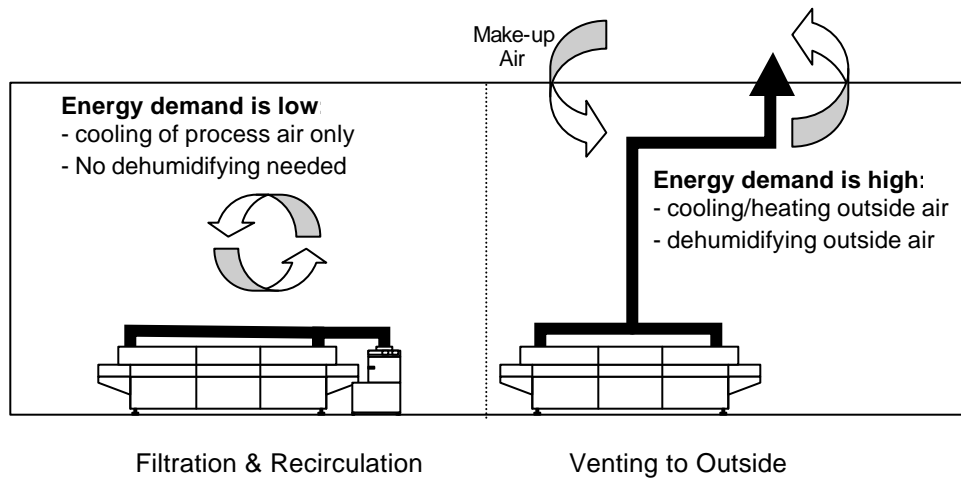


Energy Savings

A common perceived disadvantage of filtering and recirculating exhaust is that the exhaust heat is retained inside the building and therefore greatly increases HVAC costs. This is an incorrect conception, often based on the comparison of exhaust temperature and facility room temperature.

When assessing the heat impact of filtration and recirculation, the temperature and the humidity level of the process air must be compared to the temperature and the humidity level of the make-up air (from outside).



Any air vented to the outside of a facility has to be replaced with make-up air from the outside. When venting 1,000 cfm from a wave solder machine to the outside, the air conditioning system has to supply the plant with 1,000 cfm of “make-up air” to maintain the balance inside the building. Therefore, the energy or heat impact of filtration and recirculation is the difference between cooling process air from inside the facility or cooling/heating make-up air from outside.

The make-up air from outside needs to be cooled and dehumidified while the recirculated air from a filter unit needs to be cooled only.

Savings are achieved in two ways:

- lower installation costs due to a reduced air condition capacity
- lower operating cost due to operating a lower aircondition capacity

These benefits become even greater when maximum daily outside temperatures exceed 35 C degrees in which case the outside air is very often warmer than the recycled process air. In regions with very cold temperatures, significant heat savings can be gained from the warmer recirculated air during winter periods.

Based on the analysis of an independent engineering company the following operating savings can be achieved. **Details of the study can be supplied upon request.**

Annual Energy Savings for 1 line (1 wave and 2 ovens):					
\$ Savings:	Chicago	Dallas	Raleigh	San Jose	Boston
In kWh	260,920	145,348	135,167	37,575	191,691
\$ Based on 7.5 cents/kwh cooling and on 2.5 cents/kwh heating	\$ 8,134	\$ 7,524	\$ 6,241	\$ 852	\$ 6,072