Hood Performance

One of the major considerations in the determination of hood performance is the ability to effectively maintain capture and containment and exhaust effluent at low airflow rates. With the demand for reduced energy consumption in commercial buildings growing, the focus on lower exhaust rates is ever increasing. In addition, hood performance is also a key differentiator when prices are consistent between competitors.

TESTING PROCEDURES

The Food Service Technology Center's Commercial Kitchen Ventilation (CKV) laboratory is an unbiased third-party testing facility that conducts ventilation research by following strict protocols. This allows performance data to be easily compared giving manufacturers the ability to evaluate product design and end-users the ability to incorporate product performance into their purchasing decisions.

ASTM F1704-05 Test Standard

- Comparable products submitted by manufacturers interested in testing
- Products tested with various appliance lineups
- Schlieren Imaging used to determine heat or smoke loss from hood
- Exhaust rates increased by 100 cfm increments until full capture and containment of all heat and smoke is achieved

Key Testing Benefits

- Standardized testing by unbiased independent third-party agency
- Ability to fairly compare performance results for various different equipment lineups
- Opportunity to evaluate and improve on current and/or new designs
- Full reports publicly posted on the Food Service Technology Center web site (www.fishnick.com)

Key Performance Construction Features

- Performance Enhancing Lip (PEL) Technology on hood perimeter results in 31% lower airflow rates compared to a standard vertical hemmed edge (Figure 1)
- Sloped 3-inch integral airspace for improved airflow at rear of hood (Figure 2)
- Grease cup inset from edge of hood to reduce turbulence in hood corners (Figure 3)

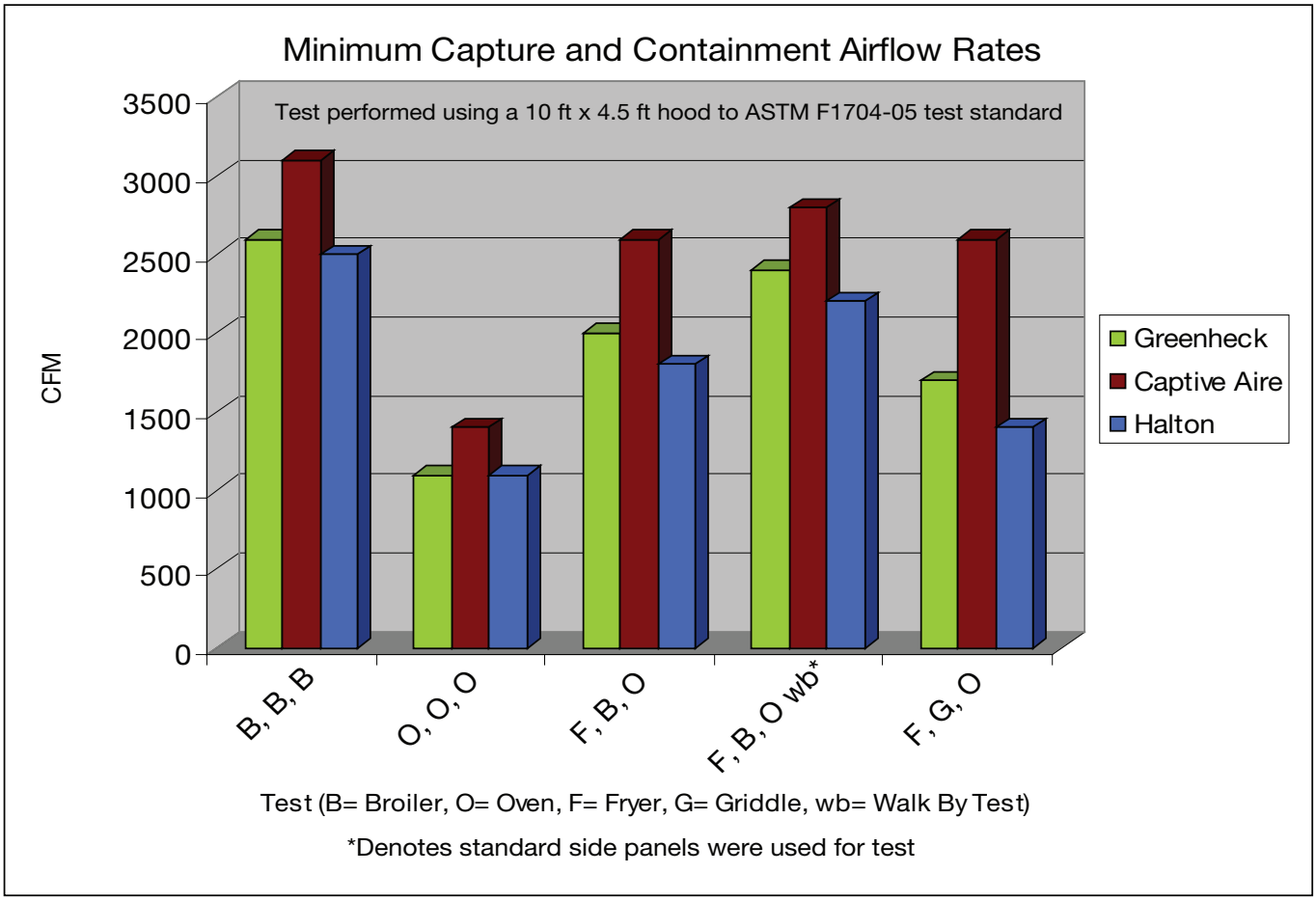
Figure 1

Figure 2

Figure 3

Hood Performance

SAMPLING OF TEST RESULTS



CAUTION: The reported rates should only be used to compare hoods under laboratory conditions. Published exhaust volumes are not sufficient to provide capture and containment in actual field installations due to air movement, airflow patterns, building balance, imperfections in make-up air strategies, etc.

CONCLUSIONS

- Captive Aire typically requires higher airflow rates across the board. This data implies that they will also require higher rates than Greenheck in the field.
- If Captive Aire designs an airflow rate lower than recommended by the Greenheck Method, their design is likely insufficient for the application. Similarly, if Greenheck designs an airflow rate based on the Greenheck Method, Captive Aire should not be able to successfully match it. The above data would suggest that they may have performance issues in the field if they do.
- Halton's results were roughly 5-10% lower on average than Greenheck with regard to the above data, however their product carries much higher up front costs (as much as 300%). The added product cost with respect to the relatively small performance benefit results in a very long payback period.