Maximizing Energy Efficiency and Sustainable Kitchen Ventilation Design in K-12 Environment

Halton

Form#: BR-003
Halton K-12 Environment Brochure

Halton Foodservice specializes in indoor climate solutions for commercial kitchens and restaurants.

Our expertise, flexibility and proprietary technology enables us to create pleasant working environments which increases worker safety and productivity. Halton systems provide the Lowest Total Cost of Ownership.

Halton Design Tools Drive Energy Efficient Kitchen Ventilation and Comfort

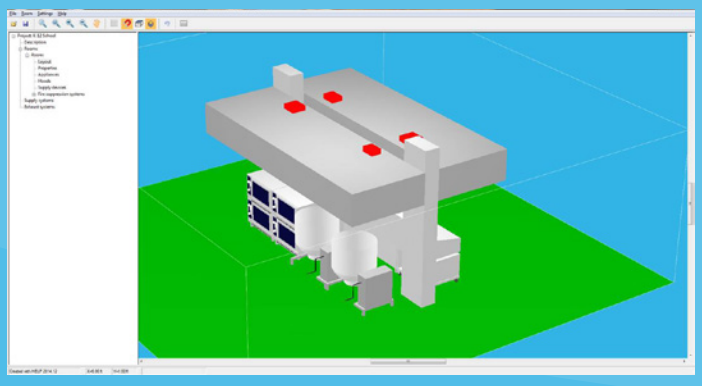
Today, nutritional guidelines for school foodservice programs are more regulated and more stringent. These guidelines are being designed to help schools do their part in fighting childhood obesity by designing high quality, healthy menus for their students. The menus also dictate the kitchen cooking appliances required.

Regardless of menu, all cooking appliances generate heat in two forms: convective and radiant. This heat must be removed from the kitchen, or treated, to maintain a safe, healthy and comfortable environment.

The challenge is to provide a system that is cost effective for day periods that schools cook while reducing energy. It may appear that these goals are at cross purposes with each other, but Halton can provide cost effective solutions that meet this criteria.

- Design exhaust volumes based on the energy released by the equipment and the efficiency of the Capture Jet hood system
- Provide, where applicable, the M.A.R.V.E.L. fastest responding demand ventilation kitchen control to allow for modulation of exhaust rates based on cooking duty, saving energy during idle or non-productive periods. If you are not cooking, you don't need to expend the energy.
- Utility Distribution Systems are a cost effective way to provide onsite utility connections for your appliances and incorporate safety features such as emergency shut off. Another benefit is the flexibility to change out connections if new appliances are incorporated.

Halton HELP (Hood Efficiency Layout Program) software calculates the energy profile of individual cooking appliances and kitchen air distribution systems. Halton uses this information to design the most energy efficient kitchen ventilation and comfort systems.



Halton's Capture Jet

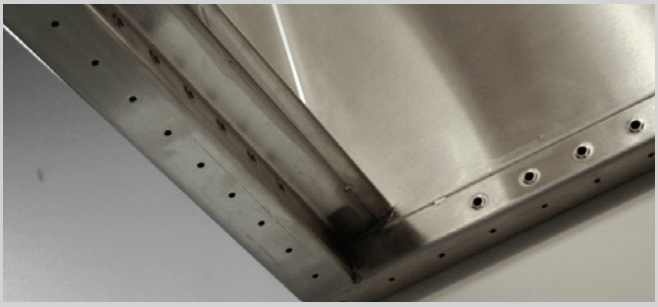
Reducing Energy Starts with the Most Efficient Exhaust System.

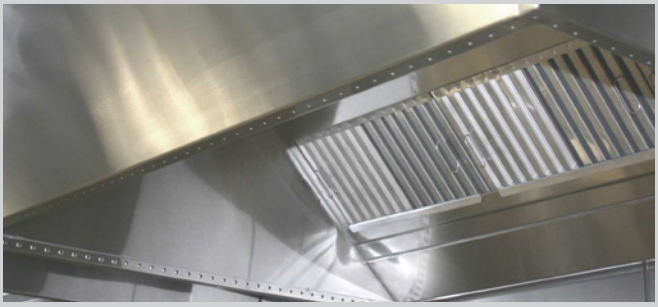
The Capture Jet hood with Perimeter jets are highly efficient kitchen ventilation hoods that remove contaminated air and excess heat emitted by cooking equipment, helping to provide a comfortable and clean environment.

The exhaust hoods use the advanced Halton Capture Jet technology which is incorporated on all open sides of the hood to improve the capture and containment of the airflows generated by the cooking equipment. Overall exhaust airflow rates can be reduced up to 30% from those of traditional kitchens.

- Improved indoor air quality with reduced energy use. Halton Capture Jet® technology reduces the exhaust airflow rates required and improves the capture and containment efficiency of the hood.
- High efficiency grease filtration using UL and NSF classified Halton KSA multi-cyclone filters for removal of up to 95% of particles with a size of 8 microns or above. Provides quiet operation.
- Validated performance based on ASTM standard F2474-05 for capture and containment threshold.
- Integral T.A.B.™ (testing and balancing) ports, which allow accurate and effective commissioning.
- LED light with16 emitter diode with aluminum heat sink provides 50 F.C. at the cooking surfaces; reduce electrical consumption and an average of 50,000 hours of operation.

H.E.L.P. ™ computer design program for exhaust air flow and kitchen air conditioning load calculations available.



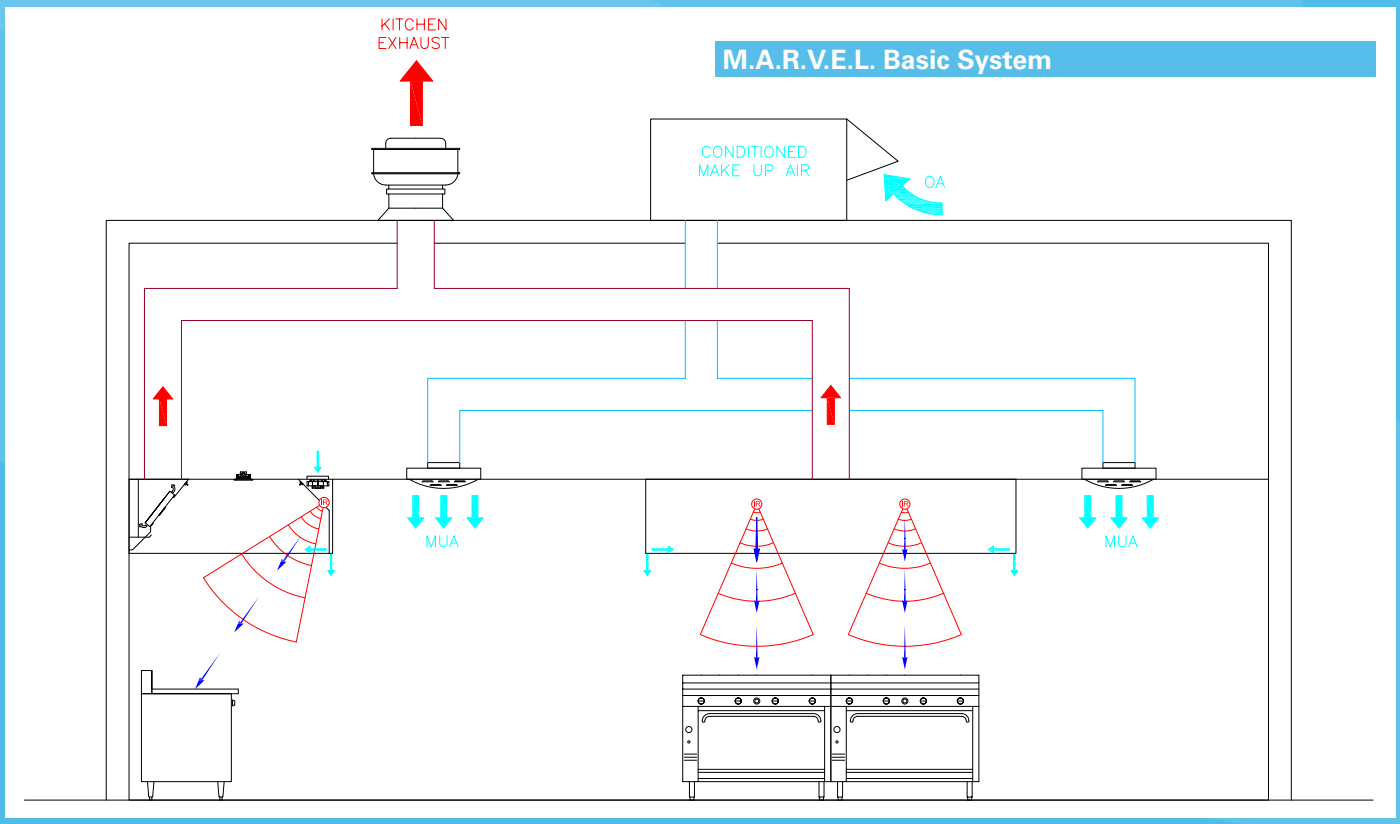


M.A.R.V.E.L. - Model-based Automated Regulation of Ventilation Exhaust Levels

With Demand Control becoming the norm rather than the exception, managing the changes in exhaust volumes and building pressure has been a challenge. The M.A.R.V.E.L. system is unique among DCV systems as it measures exhaust rates in each hood in real time. This capability allows for an accurate signal for incoming replacement air ensuring space balance as the system varies the exhaust during operation.

As the majority of capture and containment problems occur due to high velocity discharge from replacement air diffusers, the next logical step was to design and supply a diffuser for commercial kitchen use that maximizes air flow rates while minimizing thermal plume disruptions. No longer will designers have to rely on office building type diffusers, but can select from a series of high volume, low velocity diffusers that are appropriate for general supply and remote zones in kitchens.

The system is self-balancing and automatically adjusts exhaust air volumes and the appropriate makeup air requirement to each zone and/or hood and delivers it in a way that does not interfere with the cooking operation. For the first time ever the design team can provide a complete exhaust and air distribution system that is synchronized and encompasses all the design criteria needed to excel in the commercial kitchen setting. M.A.R.V.E.L. communicates with all upper level Building Management Systems.



Halton's KDS Utility Distribution System for wall or island applications

The Halton Kitchen Distribution System (KDS) is a custom built general utility center that provides distribution controls for as many foodservice equipment mechanical services as required. It can include any combination of gas, hot water, cold water, chilled water, compressed air, electrical power, fire and safety control, steam supply and condensate return line... all in a single stainless steel structure.

- Electrical - Main breaker and shunt trip, distribution breakers and the required industrial breakers. Single phase or 3-phase safety shunt trip breakers.
- Gas - Gas main with automatic shut off valve, tap for equipment, and shut off valve for each piece of equipment served.
- Water - Hot and cold water lines with taps and valves for separate equipment requirements
- Steam - Steam and condensate returns with taps and valves.
- Controls - Built in controls for fire system interlock and fan controls.
- Equipment Label - Identifies appliance connection locations.
- Capture Bar - Exhaust air entrainment feature for island style application


Halton

Halton, Intelligent Innovation

Halton is a family-owned company specializing in indoor climate and indoor environment products, services, and solutions. Applications range from public and commercial buildings to industry, commercial kitchen, and restaurant applications. Halton is also one of the most recognized names in indoor climate solutions for marine and offshore applications. The company's areas of expertise and product ranges cover air diffusion, air-flow management, fire safety, kitchen ventilation, air purification, and indoor environmental management.

Halton has operations in 30 countries, all over the world. Regional headquarters are located in Finland, the USA, and Malaysia.

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