

Adaptive Hood Systems

The Commercial Kitchen Ventilation Solution for Ghost Kitchens

Providing the greatest design and infrastructure flexibility for the changing ventilation requirements of Ghost Kitchens.



Enabling Wellbeing

Form#: BR-028

Commercial Kitchen Ventilation Solution for Ghost Kitchens

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Halton



A ghost kitchen is a professional food preparation and cooking facility designed for delivery-only meals and has no dining area for walk-in customers.

To meet the demand of the rapidly growing prepared food delivery market, Ghost Kitchens are being created. These kitchens are characterized by the availability of multiple cooking spaces without customer seating. The sole purpose of Ghost Kitchens is to improve the efficiency of the cooking and delivery process of remotely ordered prepared foods.

Ghost kitchens are unique in that the kitchen ventilation system is often utilized not only for exhaust but for a significant portion of HVAC comfort as well. The absence of dining rooms complicates the situation by requiring all the replacement air be concentrated into

each small kitchen space. Therefore, the HVAC system must not only mitigate the internal loads, but all the outdoor air loads as well. Finally, with the density of kitchens in one location, the volume of smoke and odors generated and discharged from a Ghost Kitchen may necessitate the use of a filtration system and odor abatement technology, where it is critical to mitigating this effluent.

Halton has the technical resources to provide an optimal solution that minimizes cost while factoring in team member comfort. From an HVAC standpoint, very few, if any, ghost kitchen projects will be cookie cutter.



Halton is uniquely positioned to provide solutions for the simplest single-story building to the most complex multi-story, mixed-use facility.



Facility Infrastructure Flexibility



Mitigation of Risk



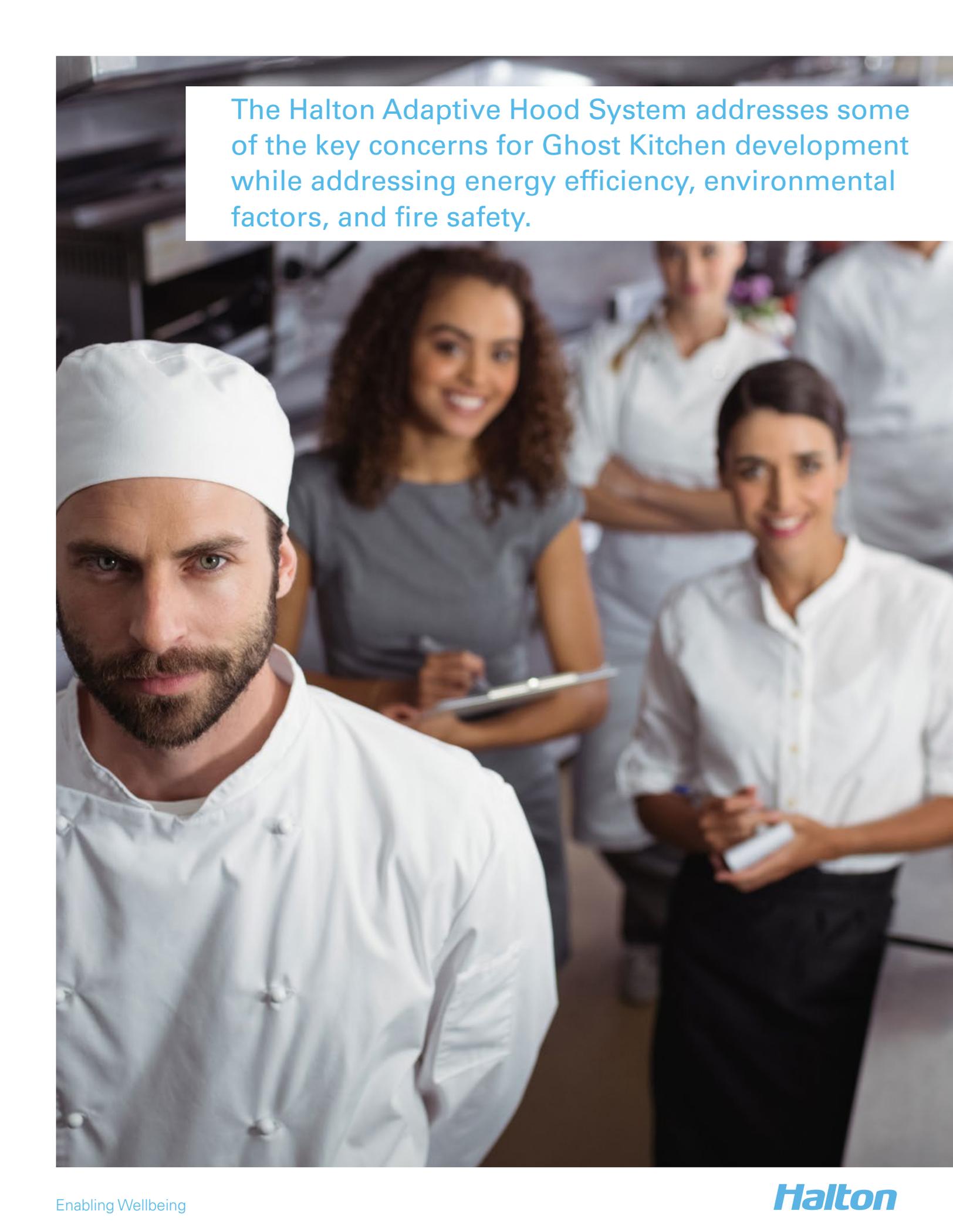
Comfort and Energy Efficiency



Kitchen Operational Flexibility

The challenges for Ghost Kitchen Ventilation Systems

- Maximizing Infrastructure flexibility
- Repurposing of existing facilities such as malls
- Availability of space for the widest number of kitchens
- Providing a comfortable environment while minimizing energy use
- Isolating menus by ethnicity or religion preparation requirements (Halal, Kosher)
- Enabling independent operation of each kitchen space even when tied to a common duct and fan
- Minimizing duct runs and exhaust systems
- Remote monitoring and data collection of critical systems

A professional kitchen setting with a chef in the foreground and other staff in the background. The chef is wearing a white chef's hat and a white chef's coat. He has a beard and is looking directly at the camera. In the background, there are several other people, some in white chef uniforms and others in grey or white shirts, some holding clipboards. The lighting is bright and even.

The Halton Adaptive Hood System addresses some of the key concerns for Ghost Kitchen development while addressing energy efficiency, environmental factors, and fire safety.



Facility infrastructure flexibility

- The system can be configured for maximum flexibility even before the menus are known
- Unoccupied kitchen spaces can be added to the system over time without interfering with operating kitchens
- Fewer exhaust fans and make-up air units required
- The master control system monitors the entire exhaust system locally and remotely
- Able to quickly change ventilation settings with changing menus
- Operator defined alerts for system maintenance and upkeep
- Control over the equipment installed – assurance of a high-efficiency, coordinated and compatible system
- A central pollution control system (when necessary) that multiple kitchens can connect to, but operate independently
- Remotely view each kitchen's operational usage on any mobile device, tablet or computer



Kitchen Operational Flexibility

- Allocate necessary exhaust levels per kitchen
- Maintain space air balance based on their operational requirements
- Allow kitchens to operate independently while being connected to a common system
- VAV, variable air volume control (zone control) of make-up air for each kitchen



Mitigation of Risk

- Grease deposition sensors to monitor ductwork for proper maintenance, ensuring fuel source of most common fires is removed, mitigating fire risk
- Local and remote monitoring of system health
- An array of odor mitigation technology, including odor critical systems to avoid odor nuisance complaints from neighboring properties
- Odor sensors in the pollution control system to monitor odor reduction effectiveness



Comfort and Energy Efficiency

- High-Efficiency hoods to minimize exhaust flow rates and save energy
- Lower exhaust results in smaller fans and duct
- Lower exhaust reduces amount of outdoor air which improves comfort
- Lowest cost of ownership

Halton's Adaptive Hood Systems have a high degree of design flexibility to suit virtually any Ghost Kitchen design.

Typical System Configuration For Ghost Kitchens



Base building, Halton KEFB Exhaust Fan or PolluStop Pollution Control System

- **KEF-B** Heavy Duty Grease Management exhaust fan
- **PolluStop** Pollution Control system is an application specific modular design that allows for many configurations to suit site conditions
- PolluStop filters residual grease from exhaust hoods and adsorbs odor before discharge
- Virtually unlimited programs available for a site-specific sequence of operation and system monitoring
- Halton **IoT Platform** for monitoring energy usage by kitchen, sub-metering, and critical system maintenance
- **Make-Up Air System** serving multiple kitchens. (M.A.R.V.E.L. can apportion correct volume based on exhaust from each kitchen)

Individual kitchen ventilation system

- **Capture Jet™** high-efficiency exhaust hood. It can be connected to a common exhaust duct
 - Exhaust flow rate customized based on appliance heat load
 - Optional Ultra Violet light module in the hood system converts grease and creates ozone contributing to odor mitigation
 - Protection of building roof membrane – high-velocity fan and/or **Capture Ray UV** hoods reduces grease deposition on the roof membrane
- Individual kitchen space touch screen to monitor system status
- Balance make-up air per tenant from individual units or a central system





M.A.R.V.E.L. Demand Control Ventilation

- M.A.R.V.E.L. acts as the control integrator for the Adaptive Hood System
- M.A.R.V.E.L. manages the operation of the base building exhaust system
 - Overall exhaust, make-up air and individual kitchen hood control
- Signal for make-up air within a vendor or common space
- Provides trending reports and remote troubleshooting
- Seamlessly integrates with the building management system



From the design concept, Halton is prepared to meet with your design team, contractors and tenants to review the system and its capabilities.



ABOUT US

Halton Group is the global technology leader in indoor air solutions for demanding spaces. The company develops and provides solutions for commercial and public premises, healthcare institutions and laboratories, professional kitchens and restaurants as well as energy production environments and marine vessels. Halton's mission is to provide its end-users with safe, comfortable, and productive indoor environments that are energy-efficient and comply with sustainable principles.

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