

# Kitchen Ventilation

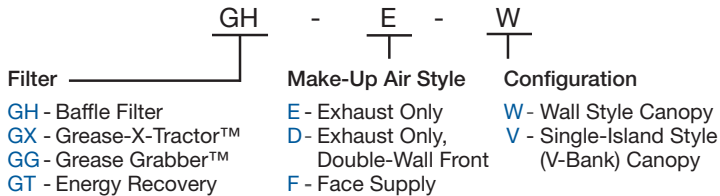
## Type I Grease Hoods

Type I hoods are designed for use above grease-producing equipment and are available in several styles and configurations.

**Best Available Program**  
Hood shipment based on accessories and hood type shown\*



### Model Number Code



Type I Hoods	Recommended Application
<b>5 DAYS</b> 	Wall canopy exhaust hoods are used over cooking equipment that produce heat and grease-laden effluent. They are intended to be used when the cooking equipment is placed against a wall. Single-Wall Front or Optional Double-Wall Front with one-inch of insulation between the two front panels that provides additional strength and rigidity. <ul style="list-style-type: none"> <li>Supply air is introduced through ceiling diffusers or external supply plenums.</li> </ul>
<b>10 DAYS</b> 	Integral air supply air is introduced horizontally through the face via perforated panels in a manner that does not interfere with the cooking operation beneath the hood(s), ensuring uniform distribution of air and limiting the throw to within several feet of the hood(s).
<b>10 DAYS</b> 	Island hoods are used over cooking equipment that produce heat and grease-laden effluent. Used over one row of cooking equipment placed where no walls exist and can be seen from all directions; has four finished (all stainless steel) sides available in both V-bank and single-bank filter configurations. <ul style="list-style-type: none"> <li>Supply air is introduced through ceiling diffusers or external supply plenums.</li> </ul>





### Product/Accessories - Hood shipment based on accessories chosen\*

<b>5 DAYS</b>	<b>Switches</b> – Light/Fan switches can be shipped loose or mounted on the hood face or utility cabinet.
	<b>Lights</b> – Multiple lighting options are available. Screw in for incandescent or CFL light fixtures are standard. Recessed incandescent, recessed fluorescent and LED lights are also available. LED lights are environmentally friendly and low maintenance. All fixtures are vapor proof and UL approved.
	<b>Duct Collars, Factory Mounted</b> – Collars are fully welded to the exhaust plenum and include a 1-inch flange.
	<b>Ship Loose</b> – Exhaust collars are included, but not mounted to the hood, allowing the contractor to cut the opening and improve aesthetics.
	<b>Filler Panels</b> – Stainless steel airspaces used to obtain required clearance to combustibles, to fill in open spaces.
	<b>Enclosure Panels</b> – When the top of the hood is mounted lower than the finished ceiling height, enclosure panels can be provided to match your hood and fill in the space between the hood and ceiling.
	<b>Exhaust Air Balancing Baffle</b> – Balances airflow between multiple duct or hood sections exhausted by a single main duct.
	<b>ASP/HSP/BSP Supply Plenums</b> – Supply air back to the space evenly.
	<b>Kitchen Fan Control Center (KFCC)</b> – Prewired control panel other than main power and connections to fan and lighting in the field. Allows you to manage power from one location.
	<b>Digital Temperature Interlock</b> – Temperature probe that detects heat from cooking and signals the fans to start. Controls available with an LED display.
<b>10 DAYS</b>	<b>Trim Strips</b> – Stainless steel strips used where hood sections meet to improve aesthetics.
	<b>Zero Clearance Top</b> – 1-inch insulated airspace provides clearance reduction to combustible/limited combustible surfaces.
	<b>Double Shell</b> – 1-inch insulated stainless panel that provides a more aesthetic finish, and increased rigidity on consultant grade hoods.
	<b>Finished Back</b> – Exposed stainless panel to finish the back of a wall canopy hood in instances where it is exposed.
	<b>Backsplash Panels</b> – Provides a cleanable stainless surface behind or on adjacent walls near the hood.
	<b>End Skirts</b> – Full or mini, provide improved capture and performance.
	<b>VSP Supply Plenum</b> – Supply air back to the space evenly.
	<b>Utility/Fire Cabinets</b> – Hood or remote mounted for housing controls or fire systems.
	<b>Fire Suppression Systems</b> – Amerex® or Ansul® factory pre-piped fire suppression systems.
	<b>Zero Clearance Sides and Back</b> – 1-inch insulated airspace provides clearance reduction to combustible/limited combustible surfaces.
<b>Vari-Flow Air Management System</b> – Matches exhaust airflow to cooking load by means of heat sensors.	

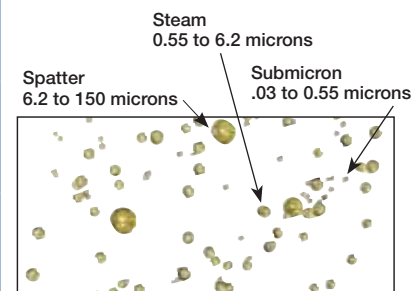
## Grease Extraction – Filtration Options

Greenheck is the industry leader in grease filtration as verified by testing to ASTM F2519-2005 standards. This is crucial to the restaurant owner/operator because the grease generated by restaurant kitchens pose many problems; frequent duct cleaning, rooftop grease problems and compliance with tougher air emissions.

Total kitchen exhaust includes all grease particulate sizes as well as grease vapors. Grease is the by-product of commercial cooking processes that must be extracted from the effluent airstream via the kitchen ventilation system.

Filter	Application	Static Pressure (9 x 4 foot hood at 2050 cfm)	Grease Removal Efficiency at 8 microns	Grease Removal Efficiency 3-10 microns
 Grease Grabber™ Multistage Filtration System	Heavy to Extra Heavy Duty Grease	1.1 to 1.3 in. wg	100%	99%
 Energy Recovery Filter	Medium to Heavy Duty Grease	0.6 to 0.7 in. wg	88%	60%
 Grease-X-Tractor™ Centrifugal Filtration	Medium to Heavy Duty Grease	0.7 to 0.8 in. wg	69%	51%
 Baffle	Light Duty Grease	0.5 to 0.6 in. wg	28%	16%





Research and testing has determined that a significant concentration of grease particles can be found in the submicron and steam phases. Most currently applied grease extraction devices remove very large grease particulate that is 10 to 150 microns in size (spatter phase), but are not capable of removing fine particulates that are found in the submicron and steam phases.



## Type II Heat and Condensate Hoods

Type II hoods are designed to capture heat and/or condensate from non-grease producing appliances such as ovens and dishwashers.



Type II Hoods	Recommended Application
 <p><b>Non-Filtered Heat and Fume Hoods</b> Model GO</p>	Primarily used for ovens or general ventilation applications to capture heat and vapor, creating a more comfortable environment for the cooking staff.
<p><b>Condensate Hoods</b> The condensate hoods are available in three styles:</p>	<ul style="list-style-type: none"> <li>Primarily used for dishwasher or condensate applications to capture heat and vapor, creating a more comfortable environment for the cooking staff.</li> <li>These hoods are constructed with a gutter and drain.</li> </ul>
<p><b>5 DAYS</b></p>  <p>No Baffles Model GD1</p>	Most economical and flexible in condensate applications.
 <p>Single-Baffle Model GD2</p>	Designed for moderate condensation applications. Great for vertical door dishwasher applications.
 <p>Double-Baffle Model GD3</p>	Designed for heavy condensate applications.

## Controls and Energy Management

Greenheck understands the importance of managing the various relationships between kitchen systems to ensure the best comfort, health and energy efficiency for your customers and employees. It is because we understand, that we provide engineered controls with many options to match your needs.

### Variable Volume

Energy efficient kitchen ventilation systems are essential in reducing the operating costs associated with foodservice operations today.

A typical kitchen system will be designed for peak exhaust needs and operating at the exhaust airflow rate at all times. The reality is the cooking operation may only demand peak exhaust rates occasionally throughout the day.

**Vari-Flow Air Management System** is our most economical variable volume system while providing top energy savings. This system senses the heat output from the cooking operation to effectively modulate the airflow and offers exceptional turndown and quick response.

The keypad with digital display or the integrated touchscreen, allows for increased flexibility in managing your kitchen environment and maximize savings. Vari-Flow also integrates easily with any building management system.



### Temperature Interlock

The temperature interlock is designed to automatically start the kitchen hood exhaust fans and keep them running while heat is being generated from the cooking appliances. The interlock will override the switch and start the fans once heat is detected in the event an operator fails to turn on the fans manually—ensuring safety and code compliance. These systems are available as a stand-alone control or as an integrated option in our other pre-engineered controls.

**Digital Temperature Interlock** includes a micro controller with LED display that can be remote mounted. This option provides easy access and accurate control when making seasonal adjustments to the temperature setting, eliminating the need to access the hood top.



### Fan Control Center

The fan control center is a single source for managing all your kitchen ventilation products: fans, make-up air, hoods, fire system interlock, lighting and more.





Pre-wired to your specifications and only minimal field wiring is needed, making installation easy.

**Model KFCC**, Kitchen Fan Control Center, is designed to control the exhaust fans, supply fans and lights for the kitchen ventilation system. The KFCC has numerous options and can be interlocked with the fire suppression system.



## External Supply Plenums

Make-up air can be introduced several ways, including ceiling diffusers, through-the-hood with an integrated supply plenum or an external supply plenum. External supply plenums positioned around the perimeter of exhaust only hoods are a great alternative to integral supply plenums. Unlike integral supply plenums, they do not sacrifice valuable hood containment area. They can be retrofitted to almost any hood and are generally less expensive than integral plenums.

Plenum Type	Recommended Supply Rate (cfm/ft)	Recommended Application
 ASP – Air Curtain Supply 10-inch to 24-inch	10-inch: Up to 180 24-inch: Up to 210	<b>Non-Tempered/Heat Only*</b> To minimize mixing with air in the space by distributing airflow at the hood, downward.
 HSP – Horizontal Supply	Up to 150	<b>Tempered Air (heated and cooling)*</b> Provides supply air to mix with room air.
 BSP – Back Supply	Up to 145	<b>Non-Tempered or Marginally Tempered Air</b> Air is kept near the hood to minimize mixing with air in the space.
 VSP – Variable Supply	Face: Up to 160 Curtain: Up to 80	<b>Non-Tempered or Marginally Tempered Air</b> Air is kept near the hood to minimize mixing with air in the space.

\* Climate determines tempering conditions.

## Fire Suppression

The first line of defense against fire in a commercial kitchen is the fire protection system installed in the exhaust hood. Greenheck has a variety of factory prepiped fire protection systems available from the two leading manufacturers, Amerex® and Ansul®.

Manufacturer / Model		Fire Suppression Category Description
Amerex®	Ansul®	
<b>Amerex® KP</b> <ul style="list-style-type: none"> <li>Wet chemical</li> <li>UL Listed</li> </ul>	<b>Ansul® R-102™</b> <ul style="list-style-type: none"> <li>Wet chemical</li> <li>UL Listed</li> </ul>	<i>Appliance specific</i> fire suppression is a wet chemical system to be used when the equipment placement is known and you expect few, if any, changes.
	<b>Ansul® Piranha®</b> <ul style="list-style-type: none"> <li>Dual-agent</li> <li>UL Listed</li> </ul>	<i>Dual-agent</i> provides a one-two punch by attacking it using the rapid flame knockdown and securing capabilities of PRX™ Liquid Fire Suppressant. Then, the superior cooling effects of water follow, cooling the cooking media below the reflash temperature within two minutes. The water also replenishes the foam blanket so that it can continue to act as a suppressant.
<b>Amerex® Zone Defense</b> <ul style="list-style-type: none"> <li>Wet chemical</li> <li>UL Listed</li> <li>Flexibility in appliance placement attributed to overlapping spray protection</li> </ul>	<b>Ansul® Overlapping</b> <ul style="list-style-type: none"> <li>Wet chemical</li> <li>UL Listed</li> <li>Provides a zone of protection where appliances are protected by an overlapping spray</li> </ul>	<i>Full flood/overlapping coverage</i> restaurant fire suppression systems were developed to solve the real world problem of how to protect a kitchen where appliances are moved around, rolled in and out for cleaning, or replaced with different appliances to accommodate changing menus. Overlapping coverage systems are also cost-effective where a lot of protection is needed.



The Restaurant Fire Suppression System is constructed in compliance with the following:

- National Fire Protection Association (NFPA) Bulletin #96 and #17A
- UL Standard 300 Listed
- UL Standard 2092 Listed (Piranha®)
- International Association of Plumbing and Mechanical Officials (IAPMO) Interim Guide IGC 113-07
- ISO 9001-2000