

Ecology

Air Purification Unit

**Grease, Smoke, and Odor Abatement
for Commercial Kitchen Applications**



CADDY CORPORATION

Food Service Equipment

Air Systems

Caddy Corporation of America
509 Sharptown Road
Bridgeport, NJ 08014 - 0345
Phone: 856-467-4222 Fax: 856-467-5511

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The quality of the air we breath is increasingly becoming a world wide concern. In Canada and the United States all levels of government are involved in the regulation of air quality. On the federal level, the Clean Air Act (CAA) and its amendments were enacted to oversee and regulate the impact of air pollution caused by industry.

The Environmental Protection Agency (EPA) was created as the primary support and implementation body for the CAA. The actual enforcement of the CAA is delegated to local government regulatory agencies called Air Quality Management Districts (AQMD's). In some areas, such as Southern California, the AQMD, South Coast Air Quality Management District (SCAQMD), has found it necessary to evaluate and regulate sources of pollutants not previously recognized. In the past, the need for pollution control equipment in commercial kitchen exhaust systems has been required only in particular situations, such as an existing high rise building, where it was impractical to run new duct work to the roof. Increasingly, environmental control agencies are making more demands for the elimination or reduction of pollutants from commercial kitchen exhaust systems. In fact current legislation was adopted by SCAQMD in November 1997 requiring pollution control devices over chain driven and under-fired char-broilers. It is probable that such legislation will be applied to other regions in the U.S., in the near future.

to eliminate grease particulate and smoke from the kitchen exhaust air stream. An optional odor removal module is also available. Through the use of odor media trays or a liquid odor system, objectionable odors from commercial kitchen cooking can be controlled effectively.



“...a three stage filtration system to eliminate grease particulate and smoke from the kitchen exhaust air stream...”

The Caddy Corporation *Ecology Air Purification Unit (APU)* utilizes a three stage filtration system

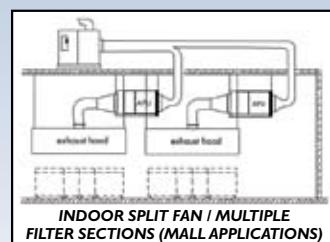
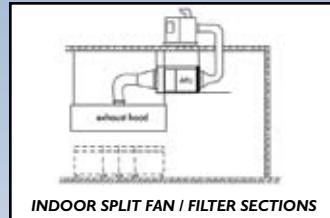
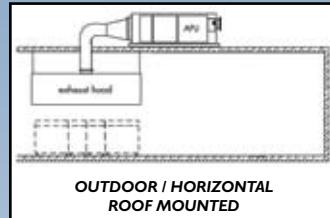
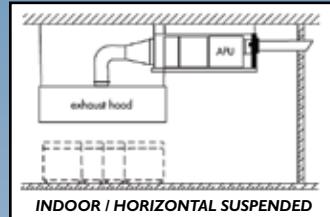
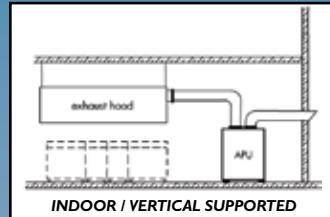
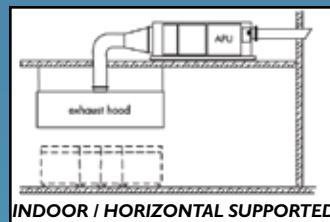
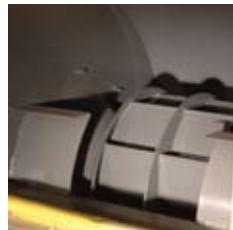
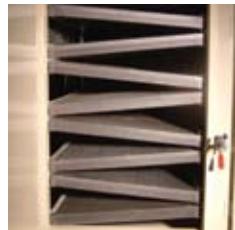
Air Purification Unit: For Pollution Control of Commercial Kitchen Exhaust

Caddy Corporation has a long history in the design and engineering of Air Purification Units. Today, the *Ecology APU* offers the consulting Engineer an efficient and economical solution to the problem of exhausting grease laden air from commercial kitchens. Cleaned exhaust air from the kitchen can be discharged to the outside at ground level, saving the cost of running all-welded duct through the building to the roof.

The *Ecology APU* system has been engineered to operate with all exhaust hoods in order to provide optimum APU filter life. The *Ecology APU* is available in models to cover any CFM range between 500 and 40,000. All *Ecology APU* models are UL and meet the requirements of NFPA 96, IMC the local Authority having jurisdiction and National Building Codes.

From busy city centers such as Boston, Las Vegas, New York, Toronto, Calgary and Vancouver, to trading centers like Dubai and Sharm El Sheik, and to the tranquility of suburban country clubs, APUs have been providing solutions to the challenges of commercial kitchen exhaust pollution.





The *Ecology APU* is available in a variety of configurations to meet engineering design requirements for the elimination of grease particulate, smoke and odor from the kitchen exhaust air stream. Integrated or stand alone modules are available for the blower, filter and odor control functions of the system. Installation can be in the ceiling space above the kitchen exhaust hood, or in a remote location such as a mechanical room, or on the roof. The *Ecology APU* provides the food service operator an economical solution to problems, which in the past would have prevented the installation of a commercial kitchen. *Ecology APU* solves the problems associated with the following:

NEW AND EXISTING HIGH-RISE BUILDINGS

Ecology APU provides the economical solution to the cost of running expensive 16 gauge, all welded fire rated ductwork to the roof as required by Fire and Building Codes. The cleaned kitchen exhaust air from the *Ecology APU* unit can be exhausted out of the side of the building at usually 10' (3 meters) above ground level or into an adjacent covered parking area.

NON TRADITIONAL SITES

Ecology APU provides the solution for historical and architecturally protected buildings, where the installation of a restaurant kitchen was not possible at the time of design.

MALL OPERATIONS WITH FOOD COURTS

Ecology APU provides pollution control for new and existing Mall Food Court operations and the flexibility for future expansion of the system. Multiple hoods and APU

filter sections can be joined to common odor control and blower sections of the system.

KITCHEN EXHAUST ODOR ABATEMENT

Ecology APU will effectively control the objectionable odors produced from commercial cooking operations when equipped with the optional Odor Control Section. This option addresses the problems of commercial kitchens located near residential areas or areas that are under pollution control requirements from the local Air Quality Management District or other local authorities.



...available in a variety of configurations to meet engineering design requirements...”

clean air clean air clean air

Applications and Filter Sections

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Air Purification Unit

The exhausted air from the cooking operation passes through the *Caddy Corporation* ventilator and is ducted to the *Ecology APU* for the removal of the remaining grease particulate and smoke. The *Ecology APU* uses a three-stage filter system that is designed to progressively remove the exhaust grease and smoke particulate matter to an ASHRAE standard rated at 99% clean air.

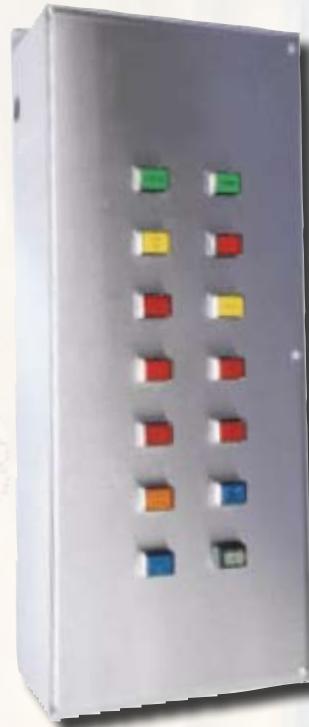
The filter section also includes:

- Pre-Filter, a disposable pleated media designed for 40% efficiency.
- Bag Filter, a disposable high efficiency, pleated bag filter with a 95% efficiency ASHRAE Std. 52-76-92 efficiency.
- Box Filter, a disposable 12" deep filter media with an efficiency of 99.8% (ASHRAE Std. 52-76, 95% D.O.P. test method to 0.3 Microns.
- A UL/ULC Listed fire damper is located downstream of the filter section with a fusible link to close the spring loaded damper.
- A pressure switch assembly is located on the filter section to monitor the status of each filter, and send service information to the remote mounted monitoring panel.
- A Fire Stat located in the filter section monitors the temperature within the unit and sends an alarm signal to the monitoring panel should the inside temperature rise above normal.

The Status Panel is constructed of stainless steel and is designed for remote mounting. The panel ACD model is used with the Caddy Corporation dry extractor type exhaust hoods or uvc exhaust

hoods and the model ACW panel is used with the Caddy Corporation model W1 wash type exhaust hoods.

The Status Panel features a 120/24v AC control circuit and contains the Fan ON/Off switch, lamps to indicate Power On, Replace Pre-Filter, Replace Bag Filter, Replace Box Filter, Filter Out, Fire, Alarm Reset pushbutton and Alarm Buzzer. Among the options available are Low Odor Liquid lamp, Hand-Off-Auto Switch and connections for controlling the unit and sending filter status signals to the Building Management System (BMS).



STATUS PANEL



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Air Purification Unit

When equipped with the optional odor control section, the *Ecology APU* can effectively control objectionable odors produced from commercial cooking. The exhaust airstream from the filter section is purified of grease and smoke but will still contain malodors produced from the cooking process. Control of these odors is accomplished by passing the exhaust airstream from the filter section through one of the odor control options offered by Caddy Corporation.

QA-ENVIRONSafe

Is a liquid specially formulated to remove malodors safely and effectively. The QA-EnvironSafe liquid is atomized directly into the exhaust air stream of the odor cabinet. QA-EnvironSafe is a formulation of natural ingredients from essential oils; it is nontoxic, biodegradable, water soluble and environmentally safe. QA-EnvironSafe is not an enzyme or chemical mask, it works by modifying the odor molecule to form a neutral substance. The combined molecular weight of the malodor and QA-EnvironSafe causes the molecules to fall to a lower atmospheric level and biodegrade naturally. A fresh natural scent results.

ACTIVATED ALUMINA SPHERES IMPREGNATED WITH POTASSIUM PERMANGANATE

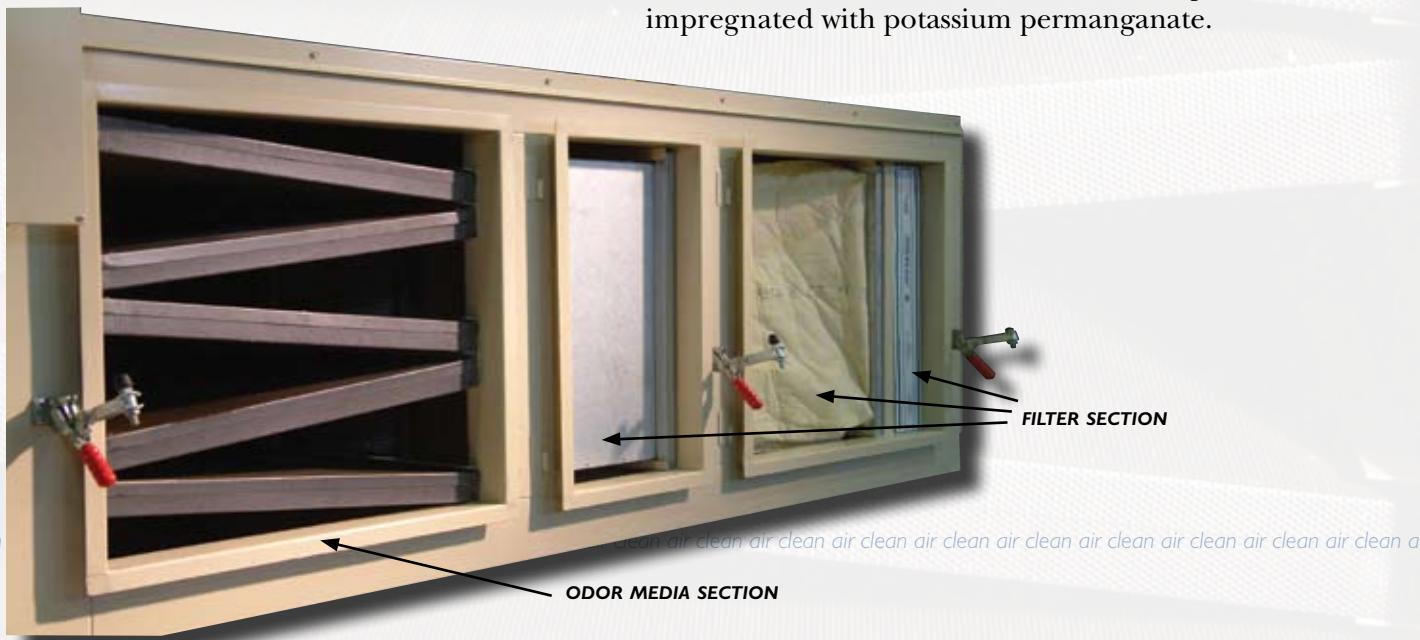
Is an oxidizing media arranged in steel trays inside the odor control section. As the exhaust air stream passes through the trays, the media causes a chemical reaction, oxidation, that breaks the odor causing molecules into odorless natural substances.



ODOR ATOMIZER CABINET

ACTIVATED CARBON

Is an absorption/adsorption media arranged in steel trays inside the odor control section. As the exhaust airstream passes through the trays, the media works through a process of absorption and adsorption on the odor causing molecules. Also available is a 50/50 blend in equal amounts of activated carbon and alumina spheres impregnated with potassium permanganate.



Odor Control and Blower/Fan Sections

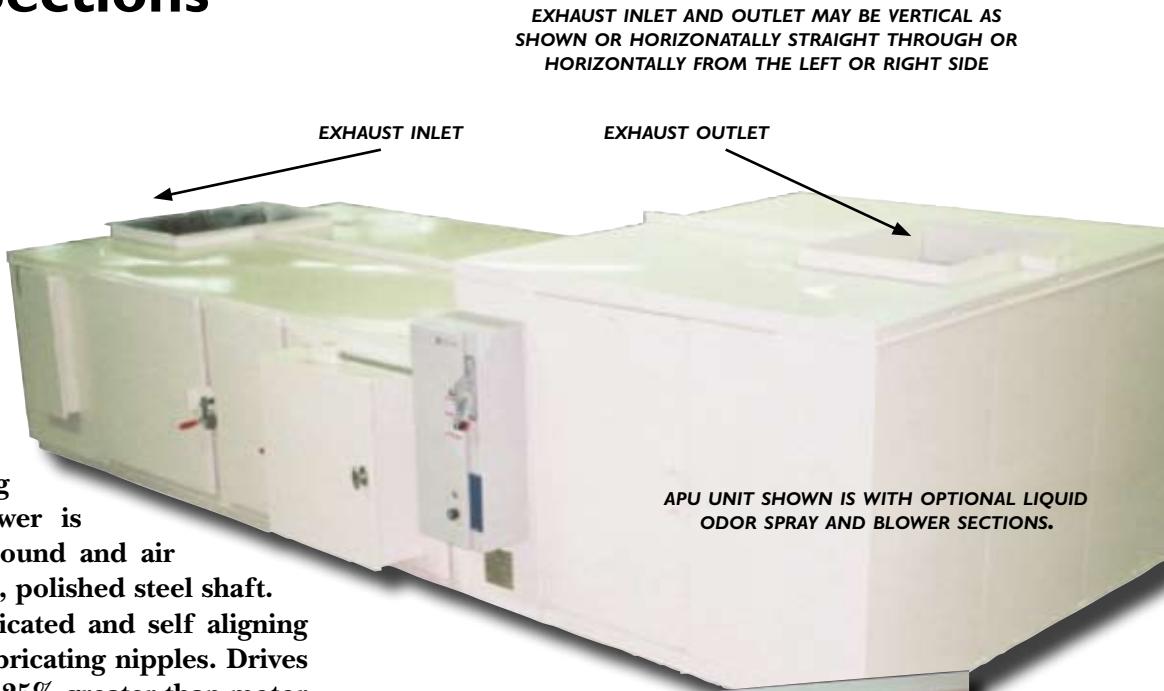
The exhaust fan section includes a centrifugal blower assembly constructed of a heavy gauge steel with a backward inclined airfoil wheel with non-overloading characteristics. The blower is AMCA Rated both for sound and air volume, with a hot rolled, polished steel shaft. Bearings are grease lubricated and self aligning pillow block type with lubricating nipples. Drives are V-belt with a capacity 25% greater than motor horsepower. The blower and motor mounting base are equipped with vibration isolators.

The discharge from the blower section can be:

- Straight Through
- Left Side Discharge
- Right Side Discharge
- Vertical Discharge

The blower compartment is constructed with a fully removable hinged access door on the drive side of the blower to allow for service and adjustment of belts.

The blower section is complete with a UL/ULC Listed Combination Magnetic Motor Starter Panel with a NEMA 1 cabinet for indoor usage or NEMA 3R water-proof cabinet for outdoor usage, and includes a fan motor starter, electrical overloads,



**APU UNIT SHOWN IS WITH OPTIONAL LIQUID
ODOR SPRAY AND BLOWER SECTIONS.**



**BLOWER SECTION SHOWN WITHOUT
ACCESS PANEL AND HINGED DOOR**

disconnect switch, and terminal blocks for remote annunciation and control.

For indoor and other noise-sensitive applications, an acoustical insulation liner is provided behind an expanded metal retaining wall.



***Working in hundreds of
locations around the world;
efficiently, smoothly, and with
an eye on the air we breath***



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