

RestorAir, LLC

An Introduction to
Advanced Oxidation Cell Technology



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Schools of Illinois
Public Cooperative

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Advanced Oxidation Cell Technology



- Proprietary Broad Spectrum UV lamp
- Quad-Metallic Hydrophilic Cell Coating
- UV light activates the Hydrated Quad-Metallic Catalyst Target creating Advanced Oxidation Products (AOP's)

Advanced Oxidation Cell (AOC) Technology Summary



- Upon exposure of a broad spectrum UV light to a hydrated quad-metallic coated cell, a catalytic process begins in which Advanced Oxidation Products (AOP's / Oxidizers) are produced (i.e. hydroxyl radicals; superoxide anions; hydroperoxides)
- AOP's are extremely reactive in making contact with organic compounds (i.e. viruses; mold; malodors); when contact is made, oxidation occurs breaking up complex compounds to more stable substances such as water vapor and carbon dioxide
- Unlike a filter, the air does not have to pass through the Advanced Oxidation Cell to be treated; air and the surfaces are treated external to the system, or at the contaminant source
- Eliminates/mitigates (does not drop out of the air) a wide range of malodors and airborne contaminants

RestorAir AOC Technology: The Advantage



- One Technology effective in eliminating a wide range of malodors, airborne contaminants, and surface contaminants anywhere within an entire facility or specific area
- Addresses the environmental pressure or impact of large numbers of people in close quarters by proactively treating air and surfaces 24 hours a day 7 days a week
- Reduce the risk of cross contamination and improve the health & safety of students, teachers, visitors, and all other school personnel (**part of a multiple intervention strategy**)
- Proven efficacy through independent third party research (e.g. CDC), independent third party IAQ testing, and 16 years practical application across multiple industries
- Low total cost of ownership: limited to no employee interaction needed after installation; limited to no ongoing preventive maintenance; no additional operational cost per use

Advanced Oxidation Cell (AOC) Technology:

Executive Summary



- The RestorAir Technology is effective against a broad range of contaminants and malodors:

Contaminants:

- Viruses (e.g. Norovirus)
- Mold/Mildew (Fungi)
- Bacteria
- VOC's

Malodors:

- General odors generated in a school environment
- MVOC's (odor from Must/Mold/Dampness)
- Food related odors
- Tobacco smoke and marijuana smoke if applicable (and overall smoke in general)
- Any other malodors

- Unlike other technologies, the RestorAir Technology eliminates both airborne and surface contaminants, and is an integral part of **multiple intervention strategies** designed to:
 - Reduce the risk of disease/pathogen transmission (cross-contamination)
 - Flatten the epidemic curve during an outbreak

Advanced Oxidation Cell (AOC) Technology:

Executive Summary



- Multiple product configurations available to address virtually every application
 - Entire Facility/School
 - Clinics, Isolation Rooms, Quarantine Rooms
 - Individual Classrooms
 - Specific Common or Public Areas (e.g. hallways; public rest rooms)
 - Gym, Locker Rooms, Auditorium, Cafeteria, Recreational Facilities, Athletic/Training Facilities
 - Residential Housing, Dorm Rooms
 - Transportation Vehicles
- The RestorAir Technology can be hard installed or portable
 - AOC's integrated into Air Handling Units (AHU) utilizing the airflow from the AHU to continually distribute the advanced oxidizers to the targeted area 24/7
 - AOC's incorporated into portable devices for use at the point source of the contaminant or malodor
- The RestorAir Technology is currently being used in schools and across multiple markets
 - Global Hotel Chains, Resorts, and Theme Parks
 - Assisted Living & Senior Living
 - Cruise Ship Lines
 - National Restaurant Chains
 - Food Processing Facilities
 - Rental Cars
 - Public Facilities

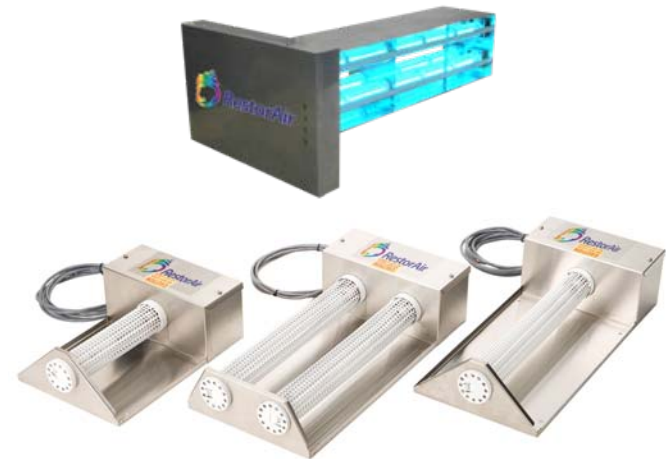


AOC Air Purification Systems (APS): Applications and Specifications

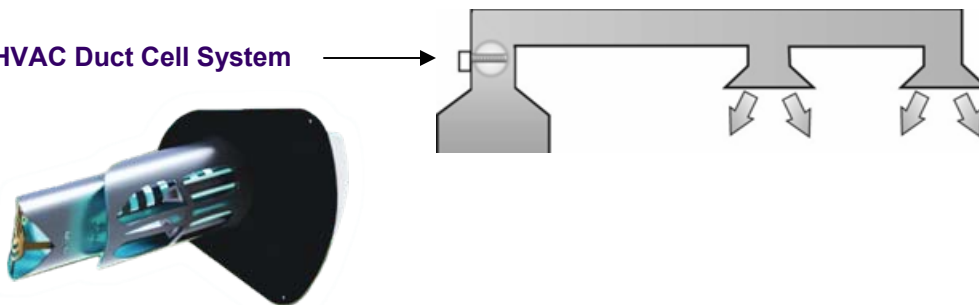
Facility, Common Areas, & Public Spaces HVAC Ductwork & AHU Systems



- These Systems are designed to be installed directly into the HVAC ductwork, Roof Top Units, Fan Coil Units, and Air Handling Units
- Treat the entire facility or specific targeted common areas and public spaces (e.g. entry areas, hallways, gym, auditorium, locker room, cafeteria)
- The Cells come in 9" and 14" Standard and Dual configurations; 20" and 35" Cells for larger air handlers; 110V & 220V availability
- Size and number of Cells recommended for a given area will be based on: air handling specs (CFM or Tonnage); square or cubic footage; potential organic load; room capacity; and area layout/structure



HVAC Duct Cell System



Rooms & Any Common/Public Areas

Rapid Room Recovery OAS



- This System utilizes two 9" Advanced Oxidation Cells, one absorbing Cartridge, and a 100 CFM blower to quickly distribute oxidizers into the problem area.
- The targeted applications are ***any larger room, hallway, gym, cafeteria, common area, or public space*** that has had a contamination event or has a heavy odor that must be eliminated in an expeditious manner.
- It is not an ozone generator, and is designed for use in occupied spaces.
- Effective against viruses, allergens, mold spores, and other air and surface contaminants.
- Effective in eliminating cigarette/marijuana smoke, food/spice odors, must/mildew odors, VOC's, and all other general malodors.
- Replaces ozone generators, ionizers, UV lamps, fogging equipment, chemical disinfectants, and masking agents.
- Low total cost of ownership, no recurring operational expense, average rated life of Cell is approximately 25,000 hours (34 months) of continuous use.



RestorAir Rapid Room Recovery Unit



Model #: RRR-AOC-16



Dimensions:	12”H x 10”W x 26”L
Weight:	15 lbs.
Material/Finish:	Stainless Steel
Voltage:	110V
Cells:	Two (2) 9” Standard
Blower:	One (1)
Cartridges:	One (1)
Controls:	Timer/Hold Switch; Reset Button
Technology:	Advanced Oxidation Cell

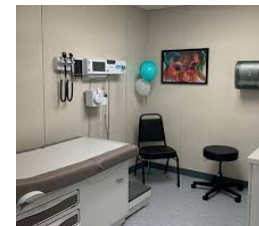
Two (2) Year Limited Warranty on Equipment; One (1) Year Limited Warranty on Cells; Average “Rated Life” of Cell is 25,000 Hours

Classrooms & Common Areas

“Dual Plug” Portable Plug-In APS



- This System utilizes one 5” Advanced Oxidation Cell and a 10 CFM fan to disperse oxidizers into a classroom or common area 24 hours a day 7 days a week.
- The target application is **any classroom, office, clinic, isolation room, common area, or public space** as it relates to contamination or ongoing persistent odors.
- It is not an ozone generator, and is designed for use in occupied spaces.
- Effective against viruses, allergens, mold spores, and other air and surface contaminants.
- Effective in eliminating cigarette/marijuana smoke, food/spice odors, must/mildew odors, VOC’s, and all other general malodors.
- Replaces ozone generators, ionizers, UV lamps, fogging equipment, chemical disinfectants, and masking agents.
- Low total cost of ownership, no recurring operational expense, average rated life of Cell is approximately 25,000 hours (34 months) of continuous use.



Portable Plug-In APS



Model #: AOC PPI-16

Dimensions: 11 ¾”H X 5 ¾”W x 3 ¾”D
Weight: 2 lbs.
Material/Finish: Polymers/Beige
Voltage: 110 V
Cells: One (1) 5” Standard
Fan Volume: ~10 CFM
Controls: On/Off; Low/High
Installation: Portable; Plug In

Two (2) Year Limited Warranty on Equipment; One (1) Year Limited Warranty on Cells; Average “Rated Life” of Cell is 25,000 Hours

Rooms & Common Areas APS for Fan-Coil and PTAC Installation



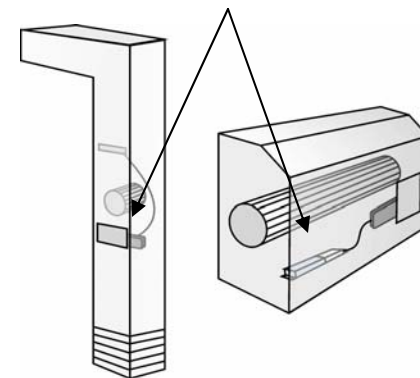
- This System is designed to be installed into Fan-Coil Units (e.g. Cabinet; Ceiling; Hi-Line) or Packaged Terminal Air Conditioners (PTAC), **treating rooms and common areas**; it uses the air flow from the air conditioning unit to disperse the AOP's throughout the targeted area

Specifications

Model:	HVAC-FCUPTAC-12/277
Dimensions:	12V; 1"H X 2 ¼"W x 10 ½" L 277V; 1 ¼" H x 2 ½" W x 11 ¼" L
Weight:	~1 lb.
Material/Finish:	Metal
Voltage:	12V DC; 277V
Power Supply:	Step Down Transformer for 12V
Cells:	One (1) 5" Standard
Installation:	Integrated into air conditioning unit



HVAC-FCUPTAC-12/277



Flush Mount Wall Unit

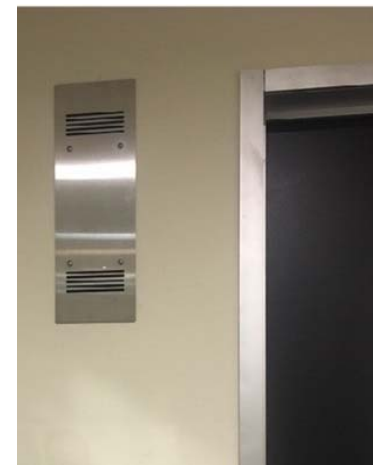


- This System is designed to mount flush to the wall; it provides continuous treatment within the installed space (e.g. restroom; hallway); designed for commercial locations; heavy duty 16 gauge brushed stainless steel fascia; has an integrated fan blowing over the Cell to continually (24/7) disperse the AOP's throughout the targeted area



Specifications

Model:	AOCBRU-16
Dimensions:	16"H X 5 1/4"W x 2 3/4"D
Weight:	2 lbs.
Material/Finish:	Aluminum/Stainless Steel
Voltage:	115V (220V available)
Cells:	One (1) 5" Standard
Fan Volume:	9 CFM
Controls:	On/Off
Installation:	Mount Flush to Wall or Ceiling/Hard Wired



Presentation Summary



- Provides continuous treatment/mitigation within the installed space; keeps the space equilibrated/saturated with Advanced Oxidizers; the oxidizers immediately react with any contaminant or malodor introduced into the area
- Effective against air and surface contaminants (e.g. viruses; mold), creating a more hygienic environment and reducing the risk of cross contamination
- Effective against any type of malodor in any environment (e.g. must/mildew; smoke)
- It is an active, not a passive or capture Technology; unlike a filter or UV light, the air does not have to pass through or by the Unit/Cell to be treated; treats air in the breathing space and on surfaces at the contaminant source
- Low total cost of ownership; no ongoing recurring operational expense like filter changes (and the labor involved in filter changes); average “Rated Life” of the Advanced Oxidation Cell is 25,000 Hours of continuous use (34 months); only the Cell needs to be changed out at that timeframe, not the Unit
- The Technology can be scaled up or down to treat large areas (e.g. entire building) or individual rooms (e.g. classrooms), and can be hard installed into your air handlers or portable
- Currently utilized in all major Hotel Brands (e.g. Marriott; Hilton), Cruise Ships (Disney Cruise Line), Assisted Living Facilities, Community Living, Schools, and many other markets

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