



**PURAFIL**<sup>®</sup>



ENGINEERED **4**  
INDOOR AIR QUALITY .....



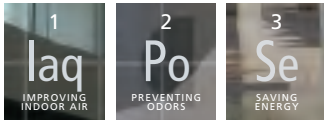


PURAFIL'S



REDUCE OUTSIDE AIR BY **75%**  
AND IMPROVE AIR QUALITY

An increasing number of commercial buildings are employing energy conservation products and practices to cut energy costs. Heating, ventilation, and air-conditioning (HVAC) represents the largest energy use in commercial buildings. Unfortunately, cutting HVAC costs is often at the expense of indoor air quality (IAQ). History has proven that buildings with insufficient ventilation compromise the health of building occupants. Enersave is the solution.



### WHAT IS enerSAVE?

Enersave uses ASHRAE Standard 62's Indoor Air Quality Procedure to cut energy costs while improving IAQ. Enersave reduces outside air requirements and HVAC loads. How? By recirculating air that would previously have been exhausted and using Purafil's chemical filtration systems to keep air clean. Enersave provides substantial operational savings and minimizes upfront capital costs.

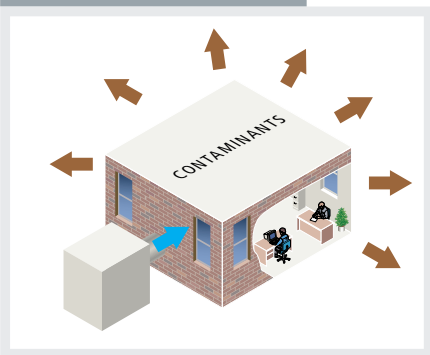
### ENERSAVE USES ASHRAE 62: IAQ PROCEDURE

ASHRAE, the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, was one of the first professional organizations to develop standards relating to IAQ for the well being of human occupants.

ASHRAE 62-1981 established the IAQ Procedure, which allowed buildings to reduce outside air requirements by recirculating air sufficiently cleaned with an air-cleaning system. The procedure was intended to help buildings conserve energy, while not ignoring the importance of clean indoor air.

Prior to 1981, the standard specified the minimum and recommended outside airflow rates necessary to provide acceptable IAQ. Known as the Ventilation Rate Procedure (Diagram 1), this procedure is still applied today. Buildings using this method rely on ventilation air to dilute pollutant levels.

1 VENTILATION RATE PROCEDURE



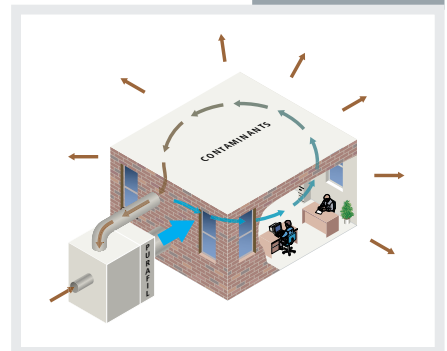
Unlike the Ventilation Rate Procedure, the IAQ Procedure (Diagram 2) does not prescribe ventilation rates; instead, it allows designers to use "any amount of outdoor air" if IAQ is acceptable to human occupants.

Though the IAQ Procedure provides a direct solution for controlling pollutants and energy savings, engineers often default to the Ventilation Rate Procedure because of the complexities associated with IAQ.

In 2002, ASHRAE approved an interpretation that outlines how to implement the IAQ Procedure in seven simplified steps. Purafil's Enersave program is based on these steps and includes the following:

- IAQ modeling
- Documentation
- Chemical filtration
- Ongoing system verification

2 IAQ PROCEDURE





## enerSAVE: THE PURAFIL SOLUTION TO RISING ENERGY PRICES

Enersave allows an engineer or building manager to reduce outdoor air and improve IAQ. Enersave provides superior Purafil air filtration systems along with the documentation and ongoing verification reports needed to comply with ASHRAE 62's IAQ Procedure.

### USE enerSAVE IN:

#### EXISTING BUILDINGS

Implement the IAQ Procedure with no additional capital expenses! Remove particulate and chemical contaminants with the Purafil, designed specifically for retrofit applications. Slide out your existing particulate filter and slide in the Purafil. Cut costs even more by reducing the total demand on heating and cooling equipment. You'll save on operational costs, and the reduced demand will extend the life of your conditioning equipment.

#### REWORK APPLICATIONS

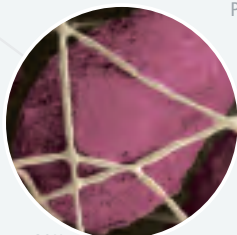
For buildings undergoing occupancy changes or chiller redesign due to refrigerant changes, capital expenditures are often required to handle the increased outside air demand to meet ASHRAE 62's Ventilation Rate requirements. With Enersave, Purafil will replace the existing particulate filters with Purafil, evaluate the building, and provide the calculations and support necessary to comply with ASHRAE 62's IAQ Procedure.

#### NEW CONSTRUCTION

With Enersave, you can reduce overall equipment sizing for tremendous cost savings on capital purchases. Purafil offers a broad range of modular systems to meet your specific airflows, contaminant levels, and space requirements. Purafil will work with your construction engineers to assure the optimum balance of energy savings and proper ventilation required to handle the increased outside air demand to meet ASHRAE 62's Ventilation Rate requirements. With Enersave, Purafil will replace the existing particulate filters with Purafil, evaluate the building, and provide the calculations and support necessary to comply with ASHRAE 62's IAQ Procedure.



PURAFILTER®



32X  
MAGNIFIED



16X  
MAGNIFIED

#### PURAFIL FILTRATION

In a typical indoor environment there are as many as 100 different chemical contaminants.

**ONLY PURAFIL'S UNIQUE AIR FILTRATION TECHNOLOGY is capable of eliminating these contaminants and reducing their concentration levels to those prescribed by ASHRAE 62's IAQ Procedure.**

Purafil's air filtration technology is an integral part of Enersave. All of Purafil's systems—from pleated chemical filters to modular units—combine the power of sodium permanganate with other specialized media for unprecedented contaminant control.



## ENERSAVE CASE STUDY: CENTURY CENTER

### THE PROBLEM

Owned and managed by Highwoods Properties, 1800 Century Center is an 18-story commercial office building in Atlanta, Georgia that faced possible upgrades in excess of \$300,000 when a high-occupancy tenant moved into the entire facility. Constructed in the late 1970s, 1800 Century Center could not provide adequate outside air for the added number of people. To comply with current codes, including minimum outside air requirements for increased occupancy, Highwoods potentially had to make the following extensive renovations:

- Adding a new make-up air unit (MUA) to the roof
- Renovating the building's structure to handle the weight of the MUA
- Installing new duct from the basement to the roof to accommodate more outside air

Highwoods sought a feasible, cost-effective way to avoid purchasing new equipment and restructuring the facility. Engineers from McKenney's Mechanical Contractors and Engineers handled the tenant upgrade and brought in Purafil and local representative Kathy Nix (AirEnergy, Inc.) to help.

### PURAFIL PROVIDES THE SOLUTION

Purafil representatives implemented Enersave, an energy-savings program that reduces the need for outside air and still meets ASHRAE 62-2001's indoor air quality (IAQ) requirements. Using ASHRAE 62's IAQ Procedure, Purafil engineers developed an IAQ model to verify that Enersave would work in Century Center from an environmental standpoint. They recalculated outside air requirements and accommodated building conditions that existed before the tenant change.

As part of Enersave, Purafil installed two-inch Purafil filters<sup>®</sup> as pre-filters on every floor's air handling unit. Each Purafil filter<sup>®</sup> had a MERV-8 particulate filter and contained Purafil CPS Blend™ media, a 50/50 volume blend of premium grade activated carbon (Purakol<sup>®</sup> media) and potassium permanganate-impregnated alumina (Purafil<sup>®</sup> Chemisorbant media) to remove a broad spectrum of contaminants.

### SUCCESSFUL RESULTS

Highwoods Properties was completely satisfied with Enersave, which allowed them to reduce the amount of outside air brought into the building, control gaseous contaminants, and recirculate clean air. By using Purafil's energy-savings program, Highwoods saved over \$300,000 in capital equipment purchases, and they resigned their contract at the end of the first year.

[www.purafil.com](http://www.purafil.com)

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