

# Capture Pollutants, Energy Savings, and LEED Credits with **PREVENT**® Equipment Protection



## Save Energy

In order to operate efficiently, outdoor HVAC equipment must be clean and free of debris. Natural pollutants, such as dust, tree seeds, leaves, and other debris can very easily clog air intake louvers and condenser fins.

According to EPA research, **as little as 0.042"** of dirt on an air conditioning coil can **reduce its efficiency by 21%**.

An article in the Refrigeration Service Engineers Society Journal states that a 5-ton A/C system could use as much as **37% more power if the coils are dirty**.

Permatron's PreVent® filters not only capture the pollutants that decrease HVAC equipment efficiency, but are cleanable, re-useable and fit any equipment.



This unprotected condenser fin is completely impacted by cottonwood seedlings, rendering it drastically inefficient or completely inoperable. Only labor-intensive cleaning using messy chemicals can restore this piece of equipment to working order.

## \$\$ Save Money

A 5-ton A/C unit protected with PreVent® equipment filters will cost up to **\$450 less per season** to operate than an unprotected A/C unit with dirty condenser fins, assuming an electricity cost of \$0.12 per kWh, 1,500 hours worth of A/C unit run time in a 90-day cooling season.



## Economy of Scale

Typically, larger A/C and air intake equipment experience a higher percentage of efficiency increase when operating with clean coils. As the size of your HVAC system or the length of your cooling season increases, so does your potential energy and utility bill savings.



## Testimonials

"The installation of the Permatron PreVent filter has saved us money, reduced downtime, and to date eliminated any possible environmental outages."

- Gary Wilcox, Production Supervisor, Osram-Sylvania

"By using the PreVent filters, we've reduced our seasonal filtration costs by almost 70% and our maintenance and cleaning man-hours are about a third of what they were with the old filtration equipment."

-Angelo Carrieri, Maintenance Superintendent, Water and Sanitation District, Parker, Colorado

## How PreVent® Filters Work

PreVent® filters are made from either polypropylene or PVC-coated polyester high abrasion media, and are all UV protected and capable of withstanding extreme indoor and outdoor environments.

The inherent electrostatic charge of the woven black polypropylene filter media enhances the filter's ability to capture and hold smaller particles.

Independent laboratory testing\* showed that PreVent® Equipment Protection Filters cause less than 1% change in compressor discharge pressure, resulting in negligible performance degradation due to pressure drop.

\* ARI Standard 210-240-2006 Performance Rating of Unitary Air Conditioning and Air Source Heat Pump Equipment Underwriters Laboratories, Plano, TX



PreVent® filters made this large-scale economizer setup in California more energy efficient.

# PREVENT®

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

# LEED Credits and Other Benefits



## LEED Certification

Permatron's PreVent® filters can help your building achieve certification through the U.S. Green Building Council's LEED Rating System by contributing to the following credits:

### Energy and Atmosphere (EA)

#### Credit 1: Optimize Energy Performance

**Intent:** To achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.

#### How PreVent filters are consistent with this Intent:

PreVent® filters provide facility managers with an easily maintained, re-useable, highly efficient means of ensuring optimum HVAC equipment efficiency by preventing condenser fins, coils, and air intake grills from becoming clogged and inefficient, thereby **eliminating potential excessive HVAC equipment energy use.**

### Indoor Environmental Quality (IEQ)

#### Credit 5: Indoor Chemical and Pollutant Source Control

**Intent:** To minimize building occupant exposure to potentially hazardous particulates and chemical pollutants.

#### How PreVent filters are consistent with this Intent:

PreVent® filters serve as a first line of defense against any pollutants in outside air being brought into a building. These filters **reduce the amount of pollutants** that reach indoor HVAC equipment filters, freeing up these filters to capture other particulates and extending their useful life.

### Innovation & Design (ID)

#### Credit 1: Innovation in Design

**Intent:** To provide design teams and projects the opportunity to achieve exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by the LEED Green Building Rating System.

#### How PreVent filters are consistent with this Intent:

The benefits of PreVent® filters transcend the current definitions of LEED credits by providing **improved energy efficiency and reduced indoor pollutant levels** by means of a technology that is not specifically listed in the requirement of each credit. Benefits related to each credit listed above can be quantified using laboratory testing data and historical energy savings records.



A York chiller with ineffective, disposable filters.



The same York chiller with durable, cleanable PreVent equipment protection filters.

## Reduce Your Carbon Footprint

A 5-ton A/C unit protected with PreVent® equipment filters, using approximately 3,750 less kWh of electricity per season, will generate approximately **5,625 lbs less CO<sub>2</sub> emissions** than an unprotected A/C unit with dirty condenser fins, assuming 1.5 lbs CO<sub>2</sub> emissions per kWh of electricity (U.S. EPA, Feb. 2011: <http://www.epa.gov/greenpower/pubs/calcmeth.htm>).



Custom-shaped triangle filters ensure optimum efficiency and simplify maintenance on this Carrier micro-channel coil laboratory cooling equipment in Plano, Texas.

## PREVENT® Filters Can Be Used On:

- Air Conditioner Condensers
- Rooftop Heating/Cooling Units
- Air-to-Air Heat Pumps
- Fresh Air Louvers
- Chillers / Cooling Towers
- Economizer Equipment
- Any other outdoor equipment with an air intake
- Indoor equipment (coolers, freezers, etc)



PreVent filters installed on these 40-ton Carrier rooftop units eliminated the need for frequent, extensive chemical cleaning in a Colorado town subject to intense cottonwood seedling invasions.

**PERMATRON®**

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