

The title "User Guide" is centered in the middle of the page. It is rendered in a large, blue, sans-serif font. The background behind the text is a horizontal band featuring a blue sky with white clouds on the left, transitioning into a yellow background with a white and blue halftone dot pattern on the right.

User Guide

How to select and use Air Cleaners effectively to control tobacco smoke and:

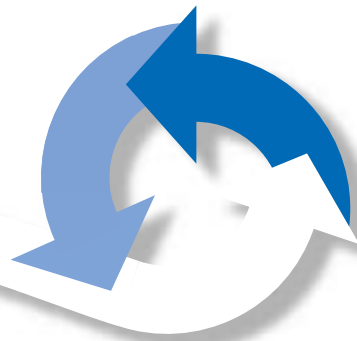
- Create a comfortable environment
- Meet health and safety standards



Introduction

Air Cleaners come in all shapes and sizes and from a variety of suppliers, and the places in which they are used are equally diverse. This guide aims to help you to buy and site the right equipment for you; and to get an Air Cleaner working again if you have an older system already installed.





What do Air Cleaners do?

Air Cleaners take particles out of the air by using a fan system to draw smoke laden air through filters. The filters trap particles allowing cleaned air to be re-circulated back into the room. This process greatly reduces the amount of environmental tobacco smoke (ETS) in the air. Some units will also be able to reduce gases and odours – usually by using a carbon filter.

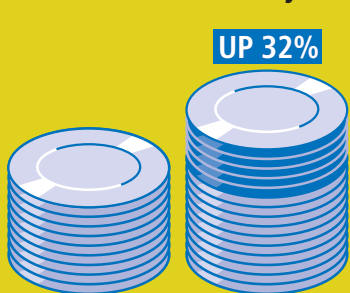
Clearing tobacco smoke – profitably

Environmental tobacco smoke can be a major problem for venues that have a large proportion of smokers and little or no air quality equipment. Typically difficulties include:

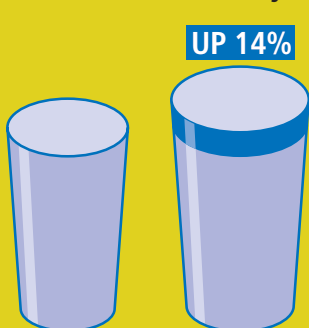
- Poor food sales
- Customers leaving early
- Occasional customers being put off from visiting
- Problems keeping staff
- Possible litigation from staff concerned for their health

In tests where Air Cleaners and ventilation were used together:

Food sales increased by 32%



Drink sales increased by 14%



Air Cleaners and ventilation

A good and economical clean air system will include both Air Cleaners and ventilation. Air Cleaners are highly effective at diluting particles from the air and ventilation fans are good at removing gases.

Air Cleaner effectiveness

Quality Air Cleaners have been independently tested by BSRIA, a leading test house to identify their effectiveness in filtering out tobacco smoke particles. The two most important results are:

- The 'Single Pass Index' or SPI, which shows how efficient they are at taking particles from the air.
- The airflow rate, which shows how much air they process

The results for ACMA members can be found on the www.air-cleaner.org.uk website.

These two factors determine the number of air re-circulations needed to cut the amount of smoke particles by 99.9% in one hour in a room with a high level of tobacco smoke. The higher the SPI the lower the number of re-circulations needed.

RECIRCULATIONS NEEDED

SPI 40	14
SPI 45	12
SPI 50	10
SPI 55	9
SPI 60	8
SPI 65	7

Remember to check cost, noise, power consumption and appearance when making your selection.

Locating Air Cleaners

- Air Cleaners are only effective if correctly sited.
- Ensure that the units treat the staff area as well as the public area.
- Ensure that units are sited to treat all of the alcoves and bays and allow for the differences in ceiling height.

- Air Cleaners rely on moving air through the unit so avoid putting units close to beams or corners.
- Ask manufacturers and installers to provide detailed advice on how to locate the Air Cleaner(s) for maximum effect.

Cleaning and maintenance

Air Cleaners require regular servicing and filter changes. If your Air Cleaners seem not to be working effectively, lack of servicing is probably the cause. The service frequency required will vary according to the make and type of equipment and the amount of smoking in the area.

All ACMA members offer service contracts. To get ineffective equipment working again identify the manufacturer from the name on the unit and visit the www.air-cleaner.org.uk website to contact them through the 'Links' page.

Ventilation

For a fully effective system, 'supply and extract' ventilation fans in windows, walls or ducts should be added. The ideal is to bring fresh air in near staff, non-smokers and food service areas and to extract it near smoking customers. Ventilation will help to speed up the removal of smoke particles and keep carbon dioxide and carbon monoxide within HSE guidelines.

Details on how to use ventilation effectively can be found at the www.airinitiative.com website.

Controlling equipment

It is important to operate your equipment effectively. If possible, automate the control of your air quality equipment by using sensors, as this will greatly improve its effectiveness and reduce energy wastage. Make a member of staff responsible for the effective running of the equipment.

Air Cleaner calculator

How to decide what you need

Selection Process	Example 1 (electrostatic)	Your outlet
<p>Step 1</p> <p>Measure your room's floor area (width x length) and then multiply this by the average height to get the full volume of the room in metres³</p>	<p>A room 10m long x 5m wide x 3m high would have a volume of 150m³ (10 x 5 x 3).</p>	<p>Length = _____ m</p> <p>Width = _____ m</p> <p>Height = _____ m</p> <p>Total volume (length x width x height) = _____ m³</p>
<p>Step 2</p> <p>Decide which Air Cleaner(s) you are interested in. Note down their type (media or electrostatic), their SPI and the maximum airflow rate from manufacturers' literature or the www.air-cleaner.org.uk website.</p>	<p>An Air Cleaner with an SPI of 60 and an airflow rate of 600 m³/hr is selected.</p>	<p>Air Cleaner details:</p> <p>SPI _____</p> <p>Airflow _____ m³/hr</p>
<p>Step 3</p> <p>Using the SPI for the unit that you are interested in, read down to see the number of re-circulations needed (see below).</p> <p>Multiply this by the room volume (Step 1) to get the total required airflow rate.</p>	<p>An Air Cleaner with an SPI 60 has been chosen, so 8 re-circulations are needed.</p> <p>Multiplied by the room volume in Step 1 (150m³) this gives a required airflow rate of 1200m³/hr</p>	<p>SPI _____</p> <p>Re-circulations _____</p> <p>Total volume (Step 1) _____ m³</p> <p>Multiply re-circulations by total volume to get required airflow rate _____ m³/hr</p>
<p>Step 4</p> <p>To calculate the number of units needed divide the total required airflow rate by the unit's maximum airflow rate from the manufacturer's details.</p> <p>Note: Always round up when calculating what you need. A mix of different capacity Air Cleaners can be used to reach the desired airflow rate.</p>	<p>Required airflow rate is 1200m³/hr and the manufacturer's details show the unit airflow rate to be 600m³/hr.</p> <p>The number of units required is therefore 2 (1200 divided by 600)</p>	<p>Divide required airflow rate (Step 3) _____ m³/hr</p> <p>by the unit's airflow (Step 2) _____ m³/hr</p> <p>to get the total number of units required _____</p>

SPI Calculator

NOTE: If using media Air Cleaners about 30% more will be needed to achieve the same level of performance. Please see inside for further information on how to use your equipment effectively.

RECIRCULATIONS NEEDED

SPI 40	14
SPI 45	12
SPI 50	10
SPI 55	9
SPI 60	8
SPI 65	7

