

AIR

A Fresh Look at

# Air Quality



# Introduction

This booklet discusses the use and value of ventilation in pub, clubs, restaurants and bars in line with the Public Places Charter on smoking.



## Clearing the Smoke

Environmental Tobacco Smoke (ETS) is the collective term for all the byproducts of cigarette smoke. It is a diluted mixture of mainstream smoke (exhaled by the smoker) and sidestream smoke (from the lit end of the cigarette). These emissions contain both 'particle phase' and 'vapour phase' contaminants that are released into the atmosphere.

The hospitality industry in the United Kingdom views ETS as a very real and immediate problem, and one that needs to be addressed directly and promptly to ensure the comfort of customers and staff – and also to reap business benefits.

**Ventilation** has a major part to play, in both reducing the amount of ETS particles and gases in the air, and in preventing smoke from drifting from one area to another.

## Pubs and Smokers

Customers who choose to smoke are vital to the continued success, or indeed survival, of many pubs, clubs and bars:

### Where smokers stand



Over a quarter of the UK population smoke (27%)



Smokers represent approximately half of pub or bar regulars (48%)

...and are twice as likely to visit pubs regularly compared to non-smokers (16% : 8%)

Source BMRB 2003

■ ■ **75% of respondents want to see more practical improvements to pub and bar environments. The majority of people who want restrictions believe that ventilation has the key role to play in this.** ■ ■

BMRB Survey 2003

# What is Ventilation?

There is often confusion about what 'ventilation' actually means. Ventilation is the introduction of fresh outside air to a room and the removal of contaminated air to the outside. It should not be confused with air conditioning, air filtration or air cleaning.



**Ventilation** is required to meet the Charter standard. Although air conditioning and air cleaning and filtration can be used effectively in conjunction with ventilation, they are **not** part of the Charter standard. Here are some basic explanations of each:

## Ventilation

- Fans in ducts, walls or windows
- Brings in fresh outside air and extracts stale air, including even the smallest particles and gases in ETS
- Dilutes and removes all gases, including carbon monoxide and other hazardous substances

## Air Cleaning/Filtration

- Usually a cassette unit on the wall or ceiling
- Removes particles from the smoky air that can irritate the eyes and throats
- Can sometimes remove some gases through a carbon filter

## Air Conditioning

- Usually a cassette unit on the ceiling
- Simply heats and cools indoor air
- Recirculates air already in the room and does not usually provide any fresh air (although in some systems 15-20% may be fresh air)

## The Charter 'Ventilated Premises' Standard

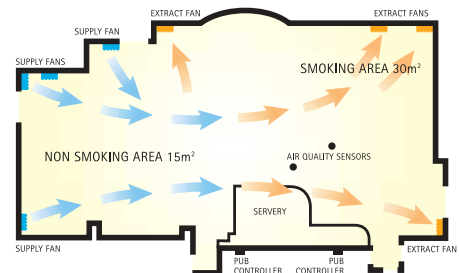
The Charter established a standard for 'good practice' ventilation:

**A minimum of 30m<sup>3</sup> per person per hour of fresh outside air entering the venue whilst the same quantity of stale air is extracted.**

Along with additional ventilation or air filtration to prevent:

- A visible smoke haze
- The smell of smoke on clothes
- Stinging eyes and irritated throats

**An example of air flow in premises fitted with Charter standard ventilation**  
(*The Bear, Reading*)



➡ The blue arrows indicate fresh outside air being pulled in by the supply fans.

➡ The orange arrows show stale, smoky air being extracted from the premises.

# Proof Ventilation Works

Health & Safety Executive standards (2000)

**Carbon monoxide** The long-term exposure limit for carbon monoxide is 30 parts per million (ppm) for an 8 hour time weighted average.

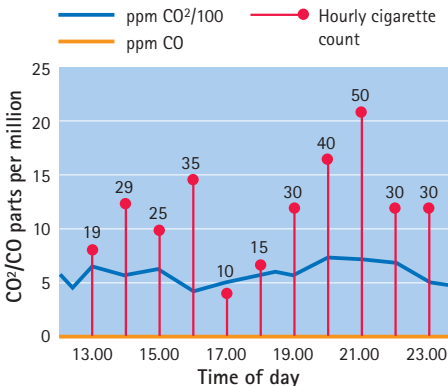
**Airborne particles** The long-term exposure limit for small particles, for an 8 hour time weighted average, is 4 mg/m<sup>3</sup>.

EH40/2000 Occupational Exposure Limits 2000 (published by the HSE)

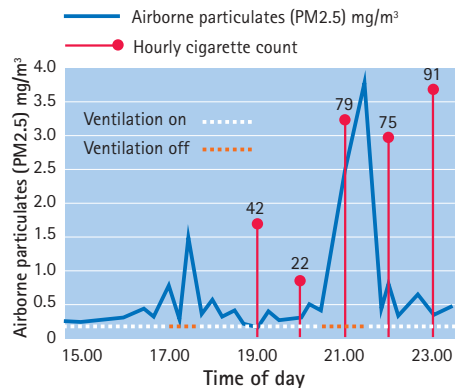
## CASE STUDY **The Monageer Tavern** IRELAND

<b>Aim</b>	Independent research conducted by the University of Glamorgan tested the effectiveness of a 'displacement' ventilation system in a one-room pub with smoking allowed throughout.
<b>Components measured</b>	Particulate matter and carbon monoxide (ETS components), carbon dioxide, relative humidity, temperature, number of cigarettes smoked.
<b>Ventilation system</b>	The system supplies cool fresh air, which naturally rises as it warms; displacing smoky air to a high level, where it is then removed from the building. This has the advantage of avoiding any smoke drift.

### Carbon monoxide and carbon dioxide measurements



### Particulate matter measurements



## The Results

When the ventilation was switched off contamination rose rapidly, but dropped back when the ventilation was switched on again. Regardless of the number of cigarettes smoked per hour, the levels of particulate matter and carbon monoxide remained largely unaffected.

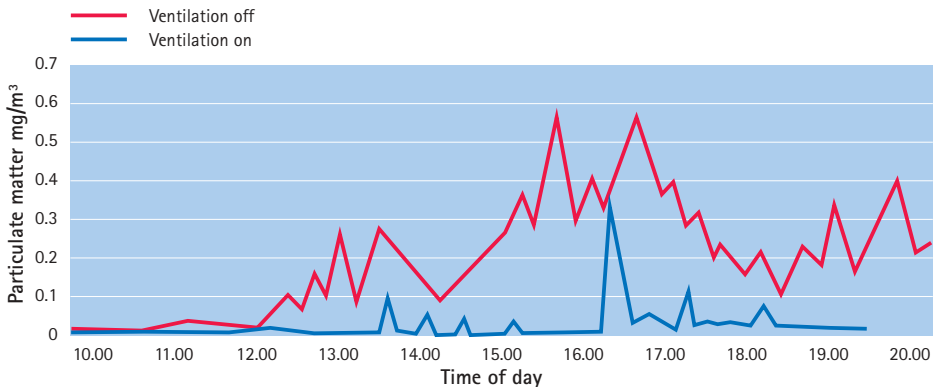
In fact, carbon monoxide levels were so low as not to register. Both are well within the HSE standards indicated above.



## CASE STUDY **The Airport Hotel** MANCHESTER

<b>Aim</b>	Independent research at the University of Glamorgan tested the effectiveness of a Charter standard ventilation system when the ventilation was switched on and off.
<b>Components measured</b>	Particulate matter and carbon monoxide (ETS components), carbon dioxide, relative humidity and temperature.
<b>Ventilation system</b>	The system comprises basic wall and window fans and fresh air ducted to the bar to create a fresh airflow through the building. It is a solution that is affordable and usable in a wide range of venues.

### Particulate matter comparison



### The Results

*The Airport's* simple ventilation system achieved a **91%** fall in particulate matter in the pub atmosphere when the ventilation was switched on. Exposure to gases dropped by **75%**. This test shows that an affordable system can be extremely effective at clearing certain ETS components.

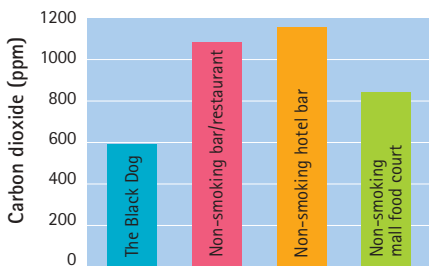


## CASE STUDY **The Black Dog** ONTARIO, CANADA

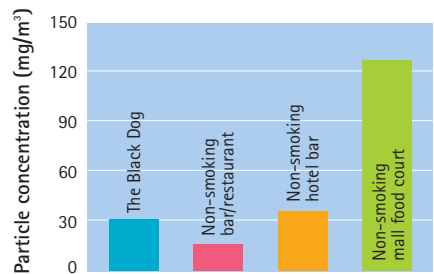
<b>Aim</b>	To test the effectiveness of a ventilation system at preventing smoke drift from a smoking area to a non-smoking area.
<b>Components measured</b>	Particulate matter (ETS component), carbon dioxide, relative humidity, temperature and patronage.
<b>Ventilation system</b>	Tailored specifically for the pub. Introduces 100% fresh outdoor air with no recirculation of stale, smoky air. Although there are partitions, the areas are not completely separated; this allows the free flow of air between sections. Air is introduced at a faster rate within the non-smoking area so that smoke cannot drift back from the smoking area.

*The Black Dog*, which has a smoking and non-smoking area, was compared to three other facilities of a similar size – all of which are entirely non-smoking.

**Carbon dioxide concentration**



**Particulate matter concentration**



### **The Results**

Results show that carbon dioxide and particulate levels in the non-smoking area are statistically indistinguishable from those in similar, regulated non-smoking facilities – even though smokers and non-smokers are essentially in the same room. This shows that effective segregation of smoking and non-smoking areas in hospitality facilities is achievable – without any need for walls and doors to separate the two sections.

# The Public Places Charter

The Public Places Charter was based on the idea of using market forces and customer choice to drive change and promote the responsible management of smoke in pubs, clubs, restaurants and bars.



Pubs were given five smoking policy options and the relevant signs to put up at the entrances to their venue, and a written policy statement for reference.

Practical measures to be taken include implementing non-smoking areas and smoking bans at the bar. The Charter actively encourages upgrading or installing Charter standard ventilation systems.



“ We must continue to deliver cleaner air if we are to retain the right to set our own smoking policies ”

Nick Bish, *Chairman of The Charter Group*

In a recent survey\* of London venues that met the Charter ventilation standard:



85% of staff thought the environment was 'comfortable' or 'very comfortable'



\* Survey Gfk Martin Hamblin



The Atmosphere Improves Results (AIR) initiative was launched in 1997 to identify and popularise good practice in the accommodation of smoking and non-smoking customers. Our aim is to improve the environment for staff and customers and to develop a better, cleaner and more profitable future for all, through active self-regulation.

Please don't hesitate to contact us should you have any questions regarding anything mentioned in this booklet.



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