

VENTILATION AND INDOOR AIR QUALITY IN BELGIAN HOTELS, RESTAURANTS AND PUBS : NEW LEGISLATION AND RESULTS OF 2 ENQUIRIES

P. Wouters¹, J. Uyttenbroeck¹, B. Vandermarcke²

¹ W.T.C.B./C.S.T.C., Brussels, Belgium

² Hoger Architectuur Instituut Sint Lucas, Belgium

ABSTRACT

A new legislation regarding ventilation provisions in Hotels, Restaurants and Pubs came into force in 1991 as part of an overall legislation regarding smoking in closed spaces. A brief description of the legislation is given and information about the practical aspects of the legislation.

The major part of the paper deals with the results of two enquiries amongst visitors and managers of these establishments.

INTRODUCTION

In line with tendencies in many other countries, the Belgian government decided in 1990 a general smoking prohibition in closed spaces which are accessible by the public and this in 8 categories of buildings (1). Amongst these buildings are schools, hospitals, nurseries, exhibition and sport buildings, buildings for spectacles and also Horeca establishments. However, for a number of buildings, the Royal Decree mentioned that exceptions are possible. In the case of Horeca establishments, smoking is not prohibited if :

- in places of less than 50 m², there is an appropriate ventilation system;
- in places of more than 50 m², there is an appropriate ventilation system and also a specific zone for non-smokers corresponding with at least 33% of the total surface (50 % from January 1, 1993 on).

In the Ministerial Decree of January 9, 1991 (2), which only deals with Horeca establishments, the conditions regarding the ventilation system to be installed are specified.

These conditions are as follows (the total description in the Decree takes only 11 lines):

- the 'smoke extraction or ventilation system' has to be designed in such a way that the minimum air flow rate equals 15 m³/h.m² of floor area;
- in the framework of this Decree, equipment which cleans the air by filters, by electrostatic or ionization filters is considered as air renewal equipment;
- the equipment has to be installed in such a way that :
 - + it has a maximum ventilation or filtering efficiency;
 - + noise or draught problems are not occurring;
 - + the intake of polluted air from chimneys, kitchens or other sources is avoided;
- on the equipment, information concerning the potential air flow rate of the equipment must be indicated;
- the equipment must be used and maintained in such a way that in all circumstances a maximum efficiency is obtained.

This decree was published on January 22, 1991 and became into force in May 1991.

Given the fact that there are about 60.000 Horeca establishments in Belgium and that no practical information was available regarding the practical execution for meeting the requirements, it was completely impossible within a delay of less than 4 months to install the required equipment in all these establishments.

Taken into account also the Belgian mentality, even today only a small portion of the establishments dispose of some kind of ventilation/ air cleaning system. It is useful to mention that the Belgian requirements concerning the air flow rates are not very high. This is illustrated in fig. 1 which compares the Belgian requirement with the requirements in ASHRAE 62-1989 (3) (on the basis of the proposed number of occupants per 100 m² as mentioned in the ASHRAE document).

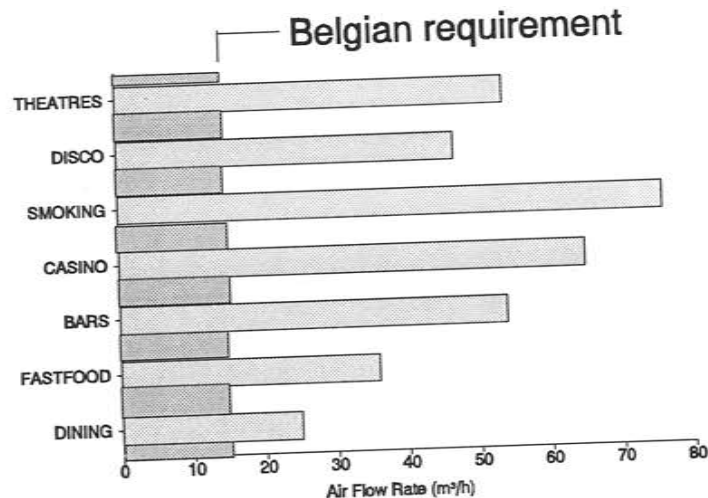


Figure 1 : Comparison of Belgian requirements with requirements in ASHRAE 62-1989

Besides these practical aspects, also a large number of questions raised regarding the interpretation of this Decree. It must be stressed that this Decree was not prepared by specialists in the field nor with practical experience regarding ventilation and air cleaning.

In order to clarify the situation, BBRI created a Working Group, aiming on the one hand to inform the Ministry of the practical problems regarding the Decree and on the other hand to prepare a document which helps the practitioner to interpret the Decree.

This document was published in the beginning of 1992 (4). The major elements are :

- a clear indication that the required 15 m³/h.m² is not at all severe and that 30 m³/h.m² is more appropriate;
- a clear indication that great care is needed regarding the use of air cleaning devices instead of ventilation. They can be seen as complementary to ventilation, not as a substitution of ventilation;
- a clear indication that also a mechanical supply system is allowed;
- specifications about the dimensioning of natural air supply or extraction devices :
 - + natural supply (in combination with mechanical extraction): the dimensioning must be done at a pressure difference of maximum 5 pa if there are open combustion appliances, in other cases at a pressure difference of maximum 10 Pa;
 - natural outlet devices (in combination with mechanical supply) : the dimensioning must be done for a pressure difference of maximum 10 Pa.
- demand controlled ventilation (CO₂-control, timer) is allowed, the system must not work the whole time at full capacity.

The Ministry agreed with these modifications so that this document has now some kind of official status.

ENQUIRY REGARDING AIR QUALITY AND VENTILATION IN HORECA ESTABLISHMENTS

General description

In order to obtain a better picture of the problems in Horeca establishments, a large enquiry was set up. This was a common action by BBRI and the school for Architecture (Hoger Architectuurinstituut Sint Lucas).

Two different enquiries were done :

- an enquiry amongst the visitors of Horeca establishments. For practical reasons, the enquiries were not done in the establishments itself but elsewhere. In total 960 enquiries were done, 63% of the persons were non-smokers;
- an enquiry amongst managers of Horeca establishments. In total, 90 enquiries were done.

The enquiries were done in the period November 1991 - March 1992. It means the legislation was already published for more than 10 months and the establishments should in principle comply with the regulations.

Results enquiry visitors

The main results can be summarized as follows :

1. There are a lot of complaints about the indoor climate in these establishments. An overview is given in table 1. The figures (%) give the number of people who complained that there are sometimes (S) or always (A) these problems. People who only smoke occasionally are not included in the table.

Table 1 : Complaints (%) amongst visitors in Pubs, Restaurants and Dancings. Distinction is made between smokers and non-smokers and whether the complaints occur Sometimes (S) or Always (A). 960 Persons involved.

| | Pub | | | | Restaurant | | | | Dancing | | | |
|-----------|-----|----|----|----|------------|---|----|---|---------|----|----|----|
| Smoker : | YES | | NO | | YES | | NO | | YES | | NO | |
| Frequency | S | A | S | A | S | A | S | A | S | A | S | A |
| Too hot | 63 | 7 | 63 | 4 | 41 | 4 | 44 | 5 | 27 | 64 | 28 | 50 |
| Too cold | 41 | 0 | 35 | 1 | 30 | 0 | 29 | 1 | 6 | 3 | 14 | 5 |
| Too noisy | 63 | 10 | 70 | 11 | 28 | 0 | 32 | 2 | 43 | 49 | 30 | 55 |
| Draught | 42 | 2 | 49 | 3 | 36 | 0 | 37 | 2 | 24 | 6 | 31 | 10 |
| Smoke | 47 | 14 | 51 | 40 | 30 | 1 | 46 | 7 | 39 | 30 | 36 | 50 |
| Odour | 43 | 5 | 50 | 12 | 30 | 1 | 37 | 5 | 35 | 14 | 47 | 29 |

It is interesting to notice that:

- also many smokers have complaints about tobacco smoke : even up to 69 % in dancings of which 30 % have in all dancings complaints;
- there are many complaints regarding temperature control, especially in dancings. More than 50 % finds it always too hot in dancings.

2. On the question whether the above mentioned types of problems play a role in their decision not to visit a certain place, significant differences are found as function of the type of establishment. The results are presented in fig. 2.

3. About 56 % of the people are aware that there is a legislation, however only 2% knows rather well the precise requirements.

4. In case someone smokes in a non-smoking area in restaurants and pubs, about 50 % of the non-smokers will ask the person to stop smoking, whereas some 22 % of the smokers will ask it.

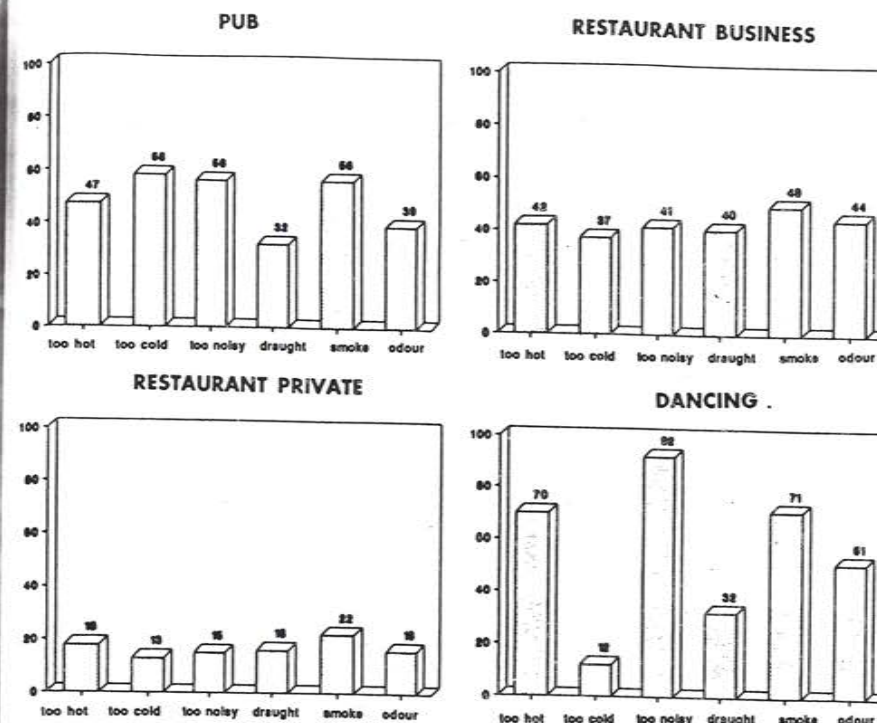


Fig. 2 : Reasons (% of answers) for not visiting certain pubs, restaurants and dancings

Results enquiry Horeca managers

Great care is needed with respect to this enquiry, which only involved 90 persons.

The major conclusions are :

1. About 20 % of the managers have themselves complaints about the air quality. Also some 20 % declare that some of their clients have complaints. 2/3 of these complaints concern tobacco smoke problems.
2. About 90 % of the managers is aware that there exists a legislation. However, less than 10 % really knows the practical aspects.
3. 56 % supports this type of legislation, however only a small part of the establishments comply with the regulations

CONCLUSIONS

The new legislation in Belgium is an important step towards a better indoor air quality in Horeca establishments. However, the technical prescriptions in the regulation have led to confusion.

The enquiries amongst clients of Horeca establishments clearly highlight that there are many problems with respect to the indoor environment. Complaints related to tobacco smoke are the most important but also problems related to the thermal comfort and especially to noise are often reported.

The Horeca managers are aware that there is some legislation but in general they do not know the specific requirements. Moreover, the majority of them was one year after the official date not in line with the legislation.

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