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Current Considerations in the Development of Ventilation Rate Guidelines

Dear Editor,

Regarding the article entitled, 'New Approaches for the Determination of Ventilation Rates', by Jokl et al. [1], the authors of this article are correct about the fact that there is still a lot of research required to make the decipol method practical enough for use by building engineers, architects and others. Recently, therefore, a large European project, coordinated by TNO Construction and Building Research in Delft (The Netherlands), has started in the programme Joule II from DG XII entitled: 'European Audit Project to Optimize Indoor Air Quality and Energy Consumption in Office Buildings.'

The main objectives of this project are:

(1) the development of assessment procedures and guidance on ventilation and source control to optimize indoor air quality and energy use in office buildings; and
(2) the development of a common Europe-wide method to investigate indoor air quality in office buildings.

In 6 selected buildings in 8 of the 10 participating European countries, the indoor air quality will be investigated according to a pre-written manual. The decipol technique will be one of the methods used. This project will therefore result in more information with respect to olf-loads and perceived air qualities, which is still lacking in the current EEC report 'Guidelines for Ventilation Requirements in Buildings'.

It has been well documented that the indoor air quality is not only affected by the occupants but also by building materials and ventilation systems. The current available standards assume that the occupants are the dominating polluters. Using the decipol method all indoor air pollution sources are taken into account. In addition to the decipol method, which takes account of the comfort of people, pollutants that have health effects should always be considered. This has been stated in all documents concerning the decipol method. The decipol method has been introduced because no instrument other than the human nose is able to register the annoyance that different combinations of pollutants in low concentrations can have. An 'artifical' nose does not exist yet!

Furthermore, some research has shown that a relation between the evaluation of perceived air quality by a visiting trained panel and the complaints from occupants exists. In the above-mentioned EC project, this relation will be investigated.

The decipol method makes it possible to quantify the contribution of all pollution sources in a building, including the contribution of ventilation systems. One of the main sources in ventilation systems are the air filters. Currently, research is being carried out to find the causes of this and to develop methods to prevent the pollution effect of air filters. With the decipol method, one can detect the main sources of pollution and try to remove these, which does great benefit to the amount of fresh filtered outdoor air required to make the indoor air quality acceptable.

Concerning the actual evaluation method, the following can be added. The use of 20 untrained panel members will never provide an accurate judgement. Research has indicated that for each trained panel member at least 8 untrained panel members are required to reach the same accuracy. A trained panel should comprise 10 to 15 persons depending on the accuracy required, which means that an untrained panel requires at least 80 to 120 persons.

Furthermore, I would be the last person to say that the current training method does not need improvement. After all, the training method was only introduced about 3 years ago.

Reference

1 Jokl MV, Leslie GB, Levy LS: New approaches for the determination of ventilation rates. Indoor Environ 1993;2:143–148.

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