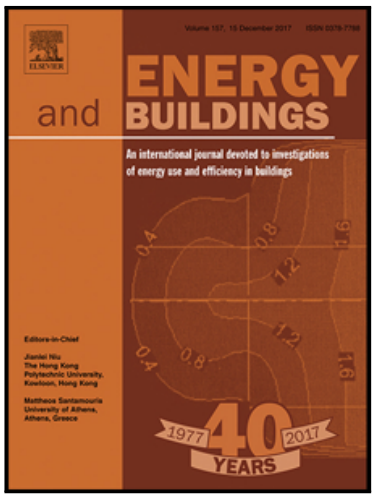

Bacteria and fungi in two Air Handling Units with air recirculating module

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Bacteria and fungi in two Air Handling Units with air recirculating module

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Abstract. This article presents and discusses the results of research on airborne and dust-borne microorganisms transported with air, and located in air handling units together with dust. Tests were carried out for two non-intact locked air supply and exhaust air handling units designed to provide the required microclimate conditions in non-typical large public utility rooms with different temperature and relative humidity requirements. The measurements were carried out in characteristic places in air handling units, such as the fan chamber, heat recovery exchanger, filters and in the room. To determine the total number of bacteria and fungi in the room and in the fan chamber, samples were collected by means of the sedimentation method. In the case of heat recovery exchangers and filters, swabs were performed from the surface of those elements. Particular attention was paid to measurements taken by means of the sedimentation method in the extract air chambers, where air velocity amounted to 2.16 and 3.18 m/s, respectively. Due to: a) significantly higher air velocity inside the air handling unit with respect to the gravitational fall speed, b) the exact direction of velocity vectors inside the air handling unit, the Petri plates were arranged in three different positions. The results of measurements showed that the arrangement of Petri plates in relation to the direction of air flow can have a significant impact on the obtained measurements, especially with regard to higher speed values. For air velocity of approximately 3.18 m/s, maximum values were obtained only for the "front" position. This could be very important, particularly if the determination of the quantity of bacteria and fungi in the supply air is required. *Pseudomonas sp, Penicilium sp*., *Aspergillus niger* and *Aspergillus flavus*, *Fusarium sp*., *Candida glabrata*, *Trichophyton mentagrophytes*, and *Paecilomyces variotii* were observed in both systems.