Indoor air quality and occupant satisfaction in five mechanically and four naturally ventilated open-plan office buildings

Occupant responses and indoor environment characteristics were recorded and compared in five mechanically and four naturally ventilated open-plan office buildings by using a simple approach that enabled us to survey many buildings simultaneously. All occupant responses were obtained during one afternoon. In a pre-experiment, temperature and the concentration of CO2 were monitored in 2-10 locations/office to evaluate the variation throughout the offices. A representative measurement point was subsequently selected and measurements of the same parameters were made during one week. All offices were monitored during the same week and occupant responses to the indoor environment were collected via the internet on the same day within that week. The temperature and the CO2 concentration varied more and were in some cases higher in the naturally ventilated buildings, but occupant responses in terms of symptoms and adverse perceptions differed only modestly between the two building types. Although rarely supported by statistical significance, the results indicated a somewhat higher degree of satisfaction with the indoor environment and a lower prevalence/intensity of symptoms among the occupants in the naturally ventilated buildings.

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