

Definition of occupant behaviour patterns with respect to ventilation for apartments from the real estate market in Santiago de Chile

Abstract

A survey of perception of thermal comfort and occupant behaviour was carried out in Santiago de Chile from December 2009 to January 2010. The survey was applied in an apartment building of the private real estate market. This paper proposes a methodology based on the systematic application of multivariate statistical techniques (principal component analysis, multivariate logistic regression and cluster analysis) which were applied to the collected data of the survey.

The results of the statistical analyses show that daytime ventilation is not strongly correlated to the perception of thermal comfort in summer, probably since it is mainly oriented to hygienic purposes. On the contrary, both night ventilation and solar protection appear as very significant predictors for the same dependent variable. The objective of these models corresponds to the definition of occupant behaviour profiles which in combination with meteorological information can be used as input data in energy building simulations. Therefore, these results form a framework that can be implemented to make calculations of energy performance of dwellings more accurate, reliable and representative of the real estate market.