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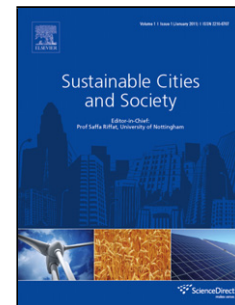
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Adaptive approach of thermal comfort and correlation between experimental data and mathematical model in some schools and traditional buildings of Madagascar under natural ventilation.

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Highlights

- The traditional buildings are more comfortable than schools.
- Between 24 and 28°C range, more than 80% of peoples were satisfied.
- T_{sens} was almost identical in schools and residences during rainy season;
- The thermal comfort range allows the selection of materials for micro-climate .

Abstract

Natural ventilation is believed to be capable of enhancing indoor air quality through appropriate passive designs. In fact, both human health demands and thermal comfort require sufficient amounts of fresh outdoor air in sub-Sahara Africa regions. The purpose of this research is to suggest a new thermal comfort approach based on subjective responses of occupants and mathematical models. There is not enough data regarding comfort in residential environment in the tropical island of Indian Ocean. This will help to define guide lines for constructing more comfortable buildings in Madagascar and other countries on the Indian Ocean. Thus experimental and subjective results of field study carried out in 67 traditional habitats, and 25 public and private schools, distributed in 25 districts of urban communes in Northern of Madagascar were presented. Mathematical modelling was based on Rohles approach. A specific questionnaire was elaborated for the investigation according to ISO 7730

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