Abstract

This work investigates the ventilation of a typical air-conditioned public waiting area and its possible impact on the spread of airborne diseases. The waiting area of the Registrar's Office at Thammasat University, Rangsitis was used as a case study.

A computational fluid dynamics (CFD) programme is employed to evaluate the flow patterns and the values of air exchange efficiency resulting from a range of combinations of supply and return air grille configuration. To reduce the risk of the spread of airborne diseases, flow vortices and stagnation should be minimized, and air exchange efficiency maximized. Theoretical analysis shows that these can be achieved through the use of upward displacement ventilation, with the supply air grilles spread through the space at the floor level and the return air grilles grouped together in the middle of the ceiling. This finding is then applied to successfully improve the ventilation of other similar public spaces.