

Strategies for Circulating Air Inside educational buildings to prevent the spread of the Coronavirus

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Abstract:

This research is basically focusing on studying the physical effects of the spread of Coronavirus within interior architectural spaces. In most international research centres concerning coping Covid-19 virus, similar studies were conducted to introduce ways of combating the spread of this virus. Places of human gatherings are more appropriate to carry out such studies related to finding ways to prevent the spread of Coronavirus infection. Therefore, educational buildings, especially classrooms and lectures halls are among the most crowded places, and their indoor space is ideal to a large extent for increasing the spread of Corona virus infection among people. The aim of this research is to calculate the rate of air change per hour in the interior spaces of educational buildings, based on the decision of the strategy of moving the air necessary to renew it by replacing clean air instead of polluted air by expelling it outside the building through a series of similar studies and applying to one of the educational halls. In this context, the methods of combating and preventing the Coronavirus were reviewed and the case of one of the halls was studied within one of the educational institutes in Dakahlia governorate and some recommendations were given that can be applied in similar institutes.

There are significant risks in building ventilation management and in maintaining healthy indoor environments. Dealing with the global epidemic of the covid-19 varies from one country to another, according to preventive measures, method, behaviour, and culture. The disease in Egypt becomes more brutal in the winter months at a time when people especially during work hours where the indoor atmosphere is closed and with poor ventilation conditions. Moreover, the Egyptian government tries to preserve its economy which is depending on different shapes of social interactions, such as commercial centres, public and private clubs, schools, universities, and government service organizations. In this context, the Egyptian government has eased the lock down restrictions gradually, and then cancelled it completely regarding certain vital associations such as universities, schools, commercial centres, and public services (UK-Government, 2018). Therefore, besides the national vaccination program for Egyptian citizens, it is also necessary to adopt the measures of the World Health Organization to prevent the spread of Covid 19 infection, including physical distancing, personal hygiene, and good ventilation of spaces, to obtain more effective results in limiting the spread of infection (World-Health-Organization, 2022).

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