

CFD Simulation for Air-Borne Infection Analysis in AII-Room

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Abstract : The present study is a foundational study for performance improvements on isolation wards to prevent proliferation of secondary infection of infectious diseases such as SARS, H1N1, and MERS inside hospitals. Accordingly, the present study conducted an analysis of the effect of sealing mechanisms and filling of openings on ensuring air tightness performance in isolation wards as well as simulation on air currents in improved isolation wards. The study method is as follows. First, previous studies on aerial infection type and mechanism were reviewed, and the review results were utilized as basic data of analysis on simulation of air current. Second, national and international legislations and regulations in relation to isolation wards as well as case studies on developed nations were investigated in order to identify the problems in isolation wards in Korea and improvement plans. Third, construction and facility plans were compared and analyzed between general and isolation wards focusing on large general hospitals in Korea, thereby conducting comparison and analysis on the performance and effects of air-tightness of general and isolation wards through CFD simulations. The study results showed that isolation wards had better air-tightness performance than that of general wards.

Keywords : AII Room, air-borne infection, CFD, computational fluid dynamics

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