

Rethinking of the Adaptability in Mass Housing for Pandemic Situations

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Pandemics spread due to poor housing conditions. Diseases have resulted in inducing the concept of mass housing, evident from housing projects initiated after the Great Plaque in London. Current pandemic, i.e., the spreading of the COVID-19 virus affected physical health of humans at alarming rates. The relationship between the spread of pandemics and living environments is unexplored. The study intends to bridge the gap in literature, and explore methods that could be implemented to mitigate situations in future scenarios. The parameters by the WELL Building Standard®, of air, water and light have been considered. Results explicitly prove mechanical systems of residential housing units need a (MERV) of 8, as 70-85% of particles can be captured. Relative humidity between 40%-60% can limit spreading of COVID19 within housing interiors. Pressure difference between corridor spaces and rooms will prevent air circulating from source to another in hospitals, minimising spreading of pathogens. Similar strategy can be adopted into the housing context via mechanical ventilation systems. The most effective method to limit spreading of pathogens from room to room in hospitals is to design a buffer space. This can be adopted in the housing context, such as powder rooms in apartments. Airborne viruses that contain single-stranded RNA are reduced by 90% with a low dose of UV light and is eliminated through building glass layers. A set of adaptive guidelines have been derived, to be applied in designing mass housing and also in managing Built Environment in similar situations.

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