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THE INTERPLAY AMONG ARCHITECTURE, MICROBIOLOGY, AND VENTILATION IN A HEALTHCARE FACILITY IN BRAZIL

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Abstract

Air conditioning (AC) can be a health risk in hospitals, particularly for patients, due to the potential for harboring microorganisms and recirculating contaminants through ventilation systems. This study focused on the interplay among air quality, architecture, and air conditioning systems in a healthcare facility in a city in the State of São Paulo, Brazil. The aim was to propose an architectural design program for technical floors for architects and engineers. The research involved temperature and humidity measurements during periodic maintenance from 2017 to 2018 and again in 2021, totaling 15 analyses. Microorganisms were collected to evaluate the microbiological air quality on two consecutive days, December 15 and 16, 2021. The study's key findings were the lack of a protocol for professional activity in maintenance, the absence of personal protection equipment during the handling of the filters, and the absence of an architectural design program in Brazilian legislation for healthcare facilities' technical floors. The study concluded that the entire cooling system is contaminated due to the lack of integration among architecture, AC, maintenance, legislation, and indoor air quality.

Key words: air conditioning, architecture, healthcare facilities, indoor air quality

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