

ABSTRACT

A room 100 in a building has a living etc. space 101 of volume V that is an enclosed space. Ventilation of an air flow F is performed from the outside to the living etc. space 101. Entering/exiting of air as an air current between the inside of the living etc. space 101 and the outside is eliminated, and at least a part of the boundary between the living etc. space 101 and the outside is configured from a gas exchange membrane 310 having a diffusion constant D , a thickness L , and an area A for gas molecules of interest. When air inside the living etc. space 101 is sufficiently agitated and the concentration of gas molecules constituting the air is made spatially uniform, $\eta(t)$ is controlled so as to vary according to

$$\eta(t) = \eta_0 - \frac{BL}{AD} (1 - \exp(-[AD/L]t/V)) \quad (9)$$

$B(\text{m}^3/\text{s})$ is the gas consumption amount inside the living etc. space 101, $\eta(t)$ is the gas concentration inside the living etc. space 101 at time t , and η_0 is the gas concentration of the outside.