

## Research on Users' Obesity and Office Tower Core-Tube Design from the Perspective of Physical Activities

**Authors :** Ming Ma, Zhenyu Cai, Rui Li

**Abstract :** People are more vulnerable to health problems than ever before, such as overweight and obesity due to the change of built environment. In the high-rise buildings, the core-tube layout is closely associated with user's physical activities which will affect human's health in a long-term. As for the white-collars who spends the amount of time working in the office tower, using staircase seems to provide an opportunity for them to increase the physical activities in the workplaces. This paper is aiming to find out the specific relationship between health and core-tube in the office tower through analyzing the correlation between staircase's layout and user's health. The variables of staircase's layout are consisted of two indicators: plan layout and space design, including nine factors while health variable is applying BIM as the only main factor. 14 office towers in downtown Shanghai are selected as the research samples because of its typical users' pattern and similar core-tube layout. In the result, it is obvious that the users from these 14 cases have higher BMI than average partly because that the staircases are mainly designed for emergency and fire instead of daily use. After the regression and correlation analysis of the variables of health and staircases, it's found that users' BMI is significantly associated with the factors of floor guide-signs and distance from lobby to the staircase. In addition, the factors of comfort level of staircase such as width and daylighting have a certain correlation with users' BMI.

**Keywords :** office tower, staircase, design, obesity, physical activity

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