歷史建築再利用計畫之物理環境評估方法研擬

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摘要

The main purpose of reusing historic buildings is to preserve environmental resources and cultural properties on cultural, historical, art, and scientific aspects. Considering current situation in Taiwan, most reuse projects are based on displaying the spatial planning; therefore, scientificity and practicability are crucial on spatial environmental planning. Yet in practical situation the scientificity and practicability are easily neglected. Thus, while applying reuse project on virtual environment, equipments, which results in rising maintaining costs, are largely used for creating indoor comfortability. Given the fact that current reuse projects have less consideration on physical conditions of virtual environment and meanwhile the scientific assessment is also neglected during examining the suitability of the reuse projects, this study emphasizes on the suitability of reusing historic buildings as exhibition apace through the indoor environment diagnosis and climate data examination. Setting Chung Cheng Hall, which is located in Ba-De City, Taoyuan County, as the research object, this study is expected to achieve reuse purpose by passive design methods. Performing measurements on the heat, wind, and luminous environment and transmitting the data into dimensionless values are included in this study along with the comparison between the preservation of the exhibited items and the human body comfort. By analyzing current issues of the environment for reuse and proposing improvements through the experimental method and process in this study, the physical environment assessment of reusing historic buildings can be established as a reference for suitability assessment of architectural reuse. Part of results in this study shows that in the thermal environment analysis of Chung Cheng Hall, the measured air temperature is in the human body comfort zone while the humidity measured in each area is slightly higher than average. Therefore, improvements

should be made to lower the humidity of each area and in advance, both the temperature and the humidity should be attenuated while the environment is in use of the exhibition space. In this study, the natural ventilation is put in use to achieve a comfortable environment for human body by increasing the air flow rate to attenuate the indoor humidity. But to accomplish an ideal environment for exhibited items, large amount of energy is needed and which again lowers the human body comfort level. As a result, by putting the exhibited items in the display cabinets with indirect lighting, avoiding direct natural lights, and a 24-hour temperature and humidity controlling, both the human body comfort environment and the ideal exhibition environment can be accomplished and the purpose of energy-saving is also achieved.

關鍵字：Reuse; Indoor Physical Environment; Environment Diagnosis; Exhibition Space; Suitability Assessment