

Evaluating Green Building's Satisfaction Level with POE



Many methods have been developed to assess a green building's performance as well as its role in ensuring occupants' well-being and productivity. Today's common definition of a green building emphasizes on employing design and building operation strategies aimed at improving Indoor Environment Quality (IEQ). However, IEQ is highly related to occupants' personal control. Thus, seeing that occupants are no longer passive recipients of the environment but rather active participants who interact with it, IEQ becomes tricky to be assessed.

Since 1980s, a comprehensive building performance diagnostic technique, Post Occupancy Evaluation (POE) have been used to surpass the current evaluation method by reducing the gap between occupants and building's energy-efficient design. As of now, the physical IEQ factors are largely grouped into four major categories: thermal environment, air quality, lighting, and acoustics. POE covers these areas by describing the performance of each category, the effect to the occupants, and the occupants' response to the less performing category that may lead to adaptive behavior.

Case study : Malaysia

Recently, a research has been carried out based on POE to evaluate occupants' satisfaction in energy-efficient buildings at 3 showcase constructions in Malaysia, built by Ban-Huat Ng and Zainal Abidin Akasah: Ministry of Energy, Green Technology, and Water Building; Malaysia Green Technology Corporation Building; and Energy Commission Building. Ironically, though the Energy Commission Building is the only building that has obtained certifications of Malaysia's Green Building Index (GBI) Platinum and Singapore's Green Mark Platinum, it has the lowest satisfaction level among the other case study buildings.

This result implies that existing sustainable rating tools could not precisely predict occupants' response and satisfaction towards IEQ during building operation. As it turned out, the main problem came from lighting. The effects of indoor lighting on occupants' visual comfort and eye health in the building indicated that the indoor lighting and visual environment of the building were poor. Visual annoyance such as glare, darkness, unqualified shading design, and logical error of shade eventually led to the installation of additional shading in order to reduce glare caused by sunlight.

Lighting is not the only problem that surfaces between the three buildings. In a tropical country with high level of humidity, thermal comfort also comes into light as one of the main problems from all four IEQ categories. Based on the case study, two of the buildings (Ministry of Energy, Green Technology, and Water Building; and Malaysia Green Technology Corporation Building) that have been occupied longer than the rest need additional installation of mechanical ventilation to achieve tolerable thermal comfort. This shows that maintenance plays an important role in energy-efficient buildings' IEQ performance. Extreme scrutiny towards certain areas that hold more portions in the applied green building rating system may lead to significantly less attention in other categories that seem to matter less. Therefore, POE is crucial to get the feedback from occupants after the building is being used for evaluation purposes and development for future project. (**AGB.com — ED**)