

Energy Certification in Township and Residential Planning

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ABSTRACT

Since May 2009, the Green Building Index (GBI) has emerged from other well-known national certification tools (LEEDS, BREAM) as a comprising measurement for environmental-friendly houses in Malaysia. In 2010, the GBI's application has been adopted from commercial and industrial applications towards residential housing.

Complementing the Green Certification from the perspective of the United Nations' **triple bottom line (planet, people, profit)**, the Tropicably Adopted Energy Performance Certificate (TEPC) looks into green building sustainability (planet), additionally into thermal comfort (people) and affordability (profit) of green and energy efficient buildings. Originated from five countries in the European Union, the TEPC targets especially affordable residential buildings. In its parenting countries, the tool has been especially developed and revamped for mid-class households and in part includes the low-bottom billions to green and save CO₂ on a wide scale.

Hence, by its comparably simple energy audit, the created TEPC can check any kind of building upon four criteria: (1) its contribution to reduce CO₂, (2) its transmission rate shielding a building's envelope against the effects of the tropical heat, (3) tropical adopted thermal comfort (the heart of liveability) and (4) total cost of ownership to green the building. All of these four dimensions will be measured in scales between blue / green on one and red on the other extreme, potentially in compliance with national energy regulations like in Germany.

After the elaboration, this research-based presentation targets at the tool's implementation for countries in the tropical belt. The action research presented comprises of two phases which are interrelated. The pilot started with the Energy Audit Concept for two Malaysian Universities in 2011 and 2012 (phase 1: pre-study). By its results, the tool reaches out towards phase 2 which defines and refines the four elements above to shape a comprising tool. Three local case studies in residential areas for retrofitting (kampung house, terrace house and semi-detached house) will highlight the practicability of the approach. Final considerations will be made to derive a holistic certification by an internationally accredited certification board.

Key Words: CO₂ Emission, Energy Audit, Passive House, Green Building Certification