Interlocking compressed earth bricks as low carbon footprint building material ABSTRACT

The building construction significantly contributes to the carbon growth due to the high carbon emissions produced by buildings and their effects on climate change. Malaysia has devoted to reduce the carbon dioxide emission by the year of 2020. Therefore, the Interlocking Compressed Earth Bricks (ICEB) has been introduced as an alternative for low carbon building material. This paper studies the carbon footprint of Interlocking Compressed Earth Bricks as a walling structure in buildings or residential houses. The Interlocking Compressed Earth Bricks system is an improvement from the conventional brick production where the brick is fabricated by compressed method (not fired), thus reducing the carbon emissions. This paper presents a cradle-to-gate carbon emission study of a multi-story residential building in a Community house in Tawau, Sabah by using the life cycle assessment (LCA) methodology. The total carbon of the buildings using conventional FCB and ICEB construction are 405.75 kgCO2/m2 and 264.50 kqCO2/m2, respectively, which are comparable with the results of similar studies found in the literature. In order to achieve low-carbon buildings for the residential houses in Sabah, the use of ICEB as alternative materials with low carbon intensities and sustainable construction practices are suitable and recommended. The result shows that the implementation of Interlocking Compressed Earth Bricks contributes to carbon footprint reduction of 35% from the conventional and suitable to be used as a low carbon footprint building material.