

Carbon Accounting for Sustainable Design and Manufacturing in the Signage Industry

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Abstract : In recent years, greenhouse gas, or in particular, carbon emissions, have received special attention from environmentalists and designers due to the fact that they significantly contribute to the temperature rise. The building industry is one of the top seven major industries contributing to embodied carbon emission. Signage systems are an integral part of the building industry and bring completeness to the space-building by providing the required information and guidance. A significant amount of building materials, such as steel, aluminium, acrylic, LED, etc., are utilized in these systems, but very limited information is available on their sustainability and carbon footprint. Therefore, there is an urgent need to assess the emissions associated with the signage industry and for controlling these by adopting different mitigation techniques without sacrificing the efficiency of the project. The present paper investigates the embodied carbon of two case studies in the Australian signage industry within the cradle - gate (A1-A3) and gate-site (A4-A5) stages. A material source-based database is considered to achieve more accuracy. The study identified that aluminium is the major contributor to embodied carbon in the signage industry compared to other constituents. Finally, an attempt is made to suggest strategies for mitigating embodied carbon in this industry.

Keywords : carbon accounting, small-scale construction, signage industry, construction materials

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