

Scientometrics Review of Embodied Carbon Benchmarks for Buildings

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Abstract : The building sector is one of the largest emitters of greenhouse gases. However, as operation energy demands of this sector decrease with more effective energy policies and strategies, there is an urgent need to parallel focus on the growing proportion of embodied carbons. In this regard, benchmarks on embodied carbon of buildings can provide a point of reference to compare and improve the environmental performance of buildings for the stakeholders. Therefore, embodied carbon benchmarks can serve as a useful tool to address climate change challenges. This research utilizes the method to provide a knowledge roadmap of embodied carbon benchmarks development and implementation trends. Two main databases, Web of Science and Engineering Village, are considered for the study. The mapping was conducted with the help of VosViewer tool to provide information regarding: the critical research areas; most cited authors and publications; and countries with the highest publications. It is revealed that the role of benchmarks in energy policies is an emerging trend. In addition, the research highlighted that in policies, embodied carbon benchmarks are gaining importance at the material, whole building, and building portfolio levels. This research reveals direction for improvement and future research and of relevance to building industry professionals, policymakers, and researchers.

Keywords : buildings embodied carbon benchmark, methods, policy

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