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The Dutch Approach for Assessing and Reducing Environmental Impacts of Building Materials

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Abstract

Buildings are one of the largest consumers of energy and materials, and hence they are also one of the largest contributors to negative environmental impacts. Traditionally, energy consumed by buildings during their operation phase was the most significant in their lifecycles and far exceeded the embodied energy. However, in contemporary low-energy buildings, the embodied energy is proportionally higher because of the prevalent use of energy-intensive materials. To determine the embodied energy and environmental impacts of building materials, the Dutch have developed an assessment method, which has also been adapted by BREEAM-NL. This paper offers an overview of the Dutch approach for assessing the environmental impacts of building materials and demonstrates its practical application. The use of the Dutch Assessment Method to identify, and quantify materials-related design improvements has been demonstrated through an exemplifying case study. It has been identified that the environmental impact of a building is largely influenced by the material choices made at the early design stage of the project.

Keywords

Building Materials, Environmental Impacts, National Environmental Database (NMD), Shadow Cost, BREEAM-NL.

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